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Col. Price Resigns From Newsprint Institute

President of Price Bros. & Co., Ltd., of Quebec, Quits Chairmanship and Reserves Freedom of Action For His Organization—Charges Members of Canadian Organization Have Failed To Conform to Agreement—New Price War Feared—May Lead To Very Upsetting Conditions in the Newspaper Business

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., September 29, 1930.—Those interested in the news print industry have received a great jolt this week by the resignation of Col. J. H. Price from the chairmanship of the Newsprint Institute of Canada, the organization which was formed to prevent price-cutting among the producers and to bring about a distribution of tonnage among the mills, so that each might get a share of the business on a percentage basis in relation to capacity. The Institute never has been successful in its objects. One reason was that some important mills remained outside the organization, and therefore independent of the Institute rulings. But an even more important reason has been that the members have never been whole-heartedly loyal to the organization, with the result that instances have arisen again and again where efforts have been made to steal the customers of other members by means of the shading of prices and the offer of special conditions and privileges. This lack of uniformity has been exposed on several occasions in this correspondence during the past two years, and although the assertions of your correspondent have on several occasions been denied, their correctness is now affirmed by the revelations of Colonel Price in his letter resigning the chairmanship of the Institute.

That the Newsprint Institute will now cease to exist is a foregone conclusion in trade circles here. It has been having a hard time ever since its formation, and the crowning blow came recently when its manager, Percy B. Wilson, died suddenly. Efforts were made to find a successor for him and several able men were approached. But conditions had already reached such a point that no continuity of service could be guaranteed to a successor, and all negotiations fell through.

As a matter of fact, those on the inside have anticipated a break-up of the Institute for some time, and the fact that it has come at this time is no surprise to them. There are some who attribute Colonel Price's action to the Hearst connection with the Canada Power and Paper Company, which was announced last week. The Hearst interests were instrumental in bringing about a break in the price of news print before the Institute was formed, and the Canada Power and Paper Corporation, with whom Mr. Hearst has now joined forces, was the most influential member of the Institute. As a matter of fact, however, this joining up of forces probably had little to do with the break-up of the Institute. The action of some of the member companies in cutting prices was the determining factor.

As matters now stand there is nothing to prevent any news print manufacturer from going out after business on any terms he likes to offer. No immediate effect as regards the transfer of orders is anticipated. Practically all newspaper publishers are booked up with tonnage orders, and the old understanding with the Newsprint Institute that the publisher will be protected by being given the benefit of the lowest price will prevail. The general feeling is that the cost of paper will now gravitate in all cases to the minimum price, and that most of the mills will continue to serve their old customers. From this the inevitable conclusion is that the high-cost mills will go out of business.

There is this also about it, that should a wide-open war develop, as it probably will as far as price-cutting goes, it may lead to a very upsetting condition in the newspaper business. Advertisers, it is thought, will be very insistent in getting cuts in advertising rates in keeping with cheaper news print. Advertisers are already chafing at the high cost of newspaper space. If a movement in this direction becomes serious, it is not improbable that there will be a return to one-cent newspapers. This in turn would stimulate the use of news print, which in its turn would be of benefit to the news print manufacturer, and bring about what many have long regarded as the only possible solution of the news print situation.

Meanwhile the developments have reacted against news print securities on the Montreal Stock Exchange, and have brought about some sharp declines in quotations.

Colonel Price's Letter

The text of the letter which Colonel Price has sent to the Board of Governors of the Newsprint Institute of Canada is as follows:

"I became chairman of the Board of Governors of the Newsprint Institute of Canada last February because I was persuaded that I might assist the success of the Institute and thus serve the best interests of the industry which, under the trying circumstances, I was willing to place above the direct advantages of the company I represent.

"I was aware at that time of the suspicion and distrust which prevailed within the Institute, and I stated in very specific form that I would undertake to act only on a basis of full co-operation and observance of agreements by all members.

"In the intervening months I have spared no efforts to promote to the best of my ability the interests of all companies belonging to the institute, both in Canada and with regard to relations

(*Continued on page 36*)

Paper Demand Fairly Active in Philadelphia

More Frequent Inquiries Around Point to Promise of Improved Conditions In Near Future—Coarse Paper Market Somewhat Easier, With Southern Kraft Quotations Down —Demand for Book Papers Falling Off—Prices Generally Irregular

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., September 29, 1930.—Though the paper industry, in so far as general conditions in the local market is concerned, is not in as encouraging a position as it was a year ago there is promise of improvement in the more frequent inquiries that now appear. While orders are slow in materializing and it requires much dickering over quotations to secure such purchases as are garnered, they are slightly better than a fortnight ago, with more spotty trading in the month end. All along the line present day business is confined to hand to mouth supplies to replace sold out stocks and, with this type of trade demanding extra shipping expenses, there is not the profitable trend to encourage dealers towards looking forward to a better showing financially with the year end. While it is believed that the near future paper markets will show improvement over the previous months little can be anticipated with the year's totals owing to the lower average of sales in the first nine months of the year.

A noteworthy revision of southern kraft prices was made within the week when one of the largest representatives announced that kraft would be marked down $3 per ton, the lowest price so far this year, making the record rate of 3⅓ cents per pound, compared to 3½, which has been the prevailing value of the year. There were also concessions made in the price of grey bogus which was similarly marked down. Grey sheathing has been offered in the late month to dealers for $5 less per ton than earlier in the season. Tissues, which have been fairly steady to date, were slightly reduced. So far news print has been steady. There has been a slight weakness noted in waxed papers for winter use, after a steady market all summer, when an unusually active market prevailed for food wraps and other hot weather purposes. The present reduction in waxed papers and in glassines is due to the competitive market product, cellophane, which is gradually becoming more extensively used. Although there is tendency to broader consumption of cellophane, which is supplied by the DuPont Corporation, there has been announced a general reduction in prices effective October 1, after two similar revisions downward earlier in the year.

There was slackening of demand for paper in bulk among the representatives of mills and those distributors who feature contract orders under long term or car load lots. While mills have been making both terms and prices appealing to dealers and consumers, there is not much encouragement in the buying movement, as all are cautiously watching business trends before committing themselves to broader stocking for the future. Book papers of all sorts that have been in demand are now less active, as contracts have been made for the remainder of the year. School supplies and flat papers used for educational purposes, are in the active list. There is broader demand for announcements, though not on a parity with last year, as the social season opens. Manufacturers of greeting cards are buyers of stocks adapted for engraved and printed greetings for the holidays. Card boards are less active and, with many cover papers showing slighter demand, there is a period of marking time for those dealers catering to wholesale supplies of papers.

Paper and Twine Merchants In Session

Members of the Philadelphia Paper and Cordage Association met in the first Fall session at the Adelphia Hotel last Friday and there discussed conditions around the luncheon board and heard the routine report of business transacted since the last meeting in June. President George K. Hooper, of the Hooper Paper and Twine Company, presided, and after reviewing business conditions and activities of the body appointed a committee which will arrange for the designing of a banner to be hoisted at the entrance to the Adelphia or other hotels whenever the association is in session, in similar manner to the raising of a banner when civic or social organizations meet. The committee in charge of designing the banner will arrange for a 16 by 30 foot streamer bearing the insignia and emblem of the body. The chairman of the committee is Stanley Brower, of J. L. N. Smythe Company. Following the general business sessions there was discussion of the twine situation and plans for promotional work in that division of the trade. The Paper and Cordage Association is the first organization linked with the paper industry to give official recognition to the twine merchants as an important factor in the industry and is the only body that includes twine distributors and manufacturers who are not also paper dealers in its ranks. Other members of the organization are dealers in volume lots of paper and paper mill agents linked with the local trade. There was admitted to membership the Bennington Wax Paper Company, of Bennington, Vt., and its Philadelphia reprsentative, Charles T. Elliott. There was also inaugurated a drive for the extension of membership.

Charles Beck Paper Co. Holds Open House

Announcements were sent to the trade and invitations extended its associates in the week by the Charles Beck Paper Company, one of the oldest fine paper and paper box makers supply houses in this section of the country, to participate in the open house hospitality extended at the new quarters just taken over in the mammoth Terminal Commerce Building. The firm this year celebrated its 66th anniversary by acquiring the large floor space in the newest and most modern, as well as unique, structure of its kind in the world, which assembles in single city center building, executive offices, warehouse and sales rooms, with a spacious garage and shipping platform abounding railroads and accommodating more than 600 teams or trucks and similar number of automobiles. The old location at 609 Chestnut street has been abandoned after more than forty years occupancy by the firm.

Charles Beck Machine Co. Moves

Under joint ownership of the interests that control the Charles Beck Paper Company, the allied business known as the Charles Beck Machine Company, which occupied the second and third floors of the structure at 609 Chestnut street, will be removed to new quarters in the Terminal Commerce Building, occupying the tenth floor at the junction corner of 13th and Noble streets. In the new quarters, the Beck Machine Company will have a combined machine shop, plant, warehouses and official sales headquarters on single larger floor space instead of the separate machine shops and offices now occupied. Removal of the stocks and units began last week and by October 1 the firm will be settled in its new location. The Charles Beck Machine Company, of which Charles J. Beck and Leon Beck, head of the Charles Beck Paper Company, are owners, produces its own patented paper converting machines used by the box making, wall paper manufacturing, corrugated and container manufacturers and printers and including cutters, cutters and printing machines combined, sheeting machines and like products for the allied trades. It has been established for more than forty years and is one of the first concerns devoted to the perfection of converting machines in the country. In the new quarters more modern shipping services will be pro-

vided for handling orders with despatch and while the city square structure will have in its environs many business houses and warehouses there will be provided for the Beck Machine Company a separate elevator service that will enable if to handle these mechanical units without interference from other sources.

Moore and White Co. Officials

The present officers of the Moore and White Company, manufacturers of paper making machinery, 15th and Lehigh avenue, are President J. Atwood White, Sr., Treasurer James A. Currens, Secretary Charles H. Prenzel, with J. Atwood White, Jr., as assistant to the president. Mr. Currens succeeds the late Shelton A. Hibbs, former president and treasurer of the concern, and formerly was the assistant treasurer of the company.

Hummel-Ross Fibre Corp. Removes

Effective with the mid month, the Hummel-Ross Fibre Corporation, formerly occupying eastern sales offices in this city in the building at 437 Chestnut street, removed to the Lewis Tower, northeast corner 15th and Locust streets. The new offices will become the general sales offices of the corporation, with mills located at Hopewell, Va., and the personnel in charge of the local offices remains intact, with T. C. Hanna as sales manager, F. Osborne, and an additional salesman to the staff who will be announced later. There will be continued at the Hopewell, Va., mills a sales office which will remain under direction of L. R. Boswell, whose sales territory includes the south and middle west.

Nashua Gummed and Coated Paper Co. to Move

With the first of the coming month there will be removed the Philadelphia branch offices of the Nashua Gummed and Coated Paper Company and its subsidiary, the Nashua Package Sealing Company, now located in Room 1101 Widener Building. The new offices and local branch headquarters are to be located in enlarged quarters in the Wilford Building, in Suite 100, where will be the offices of the local manager, G. H. C. Marsh. The offices are in the recently erected modern building at 33rd and Arch streets. The firm manufactures gummed kraft tapes, gummed sheets in krafts, coated papers, and its own line of sealing tapes, with plant at Nashua, N. H.

Price and Pierce Ltd. Introduces New Lines

Price and Pierce Ltd., with main offices in New York, during the past week introduced to the Philadelphia distributors a new line machine glazed kraft. The new line is attractively designed, colored and striped specialty paper for the coming holidays and for other particular purposes and occasions and standard year round glazed krafts adapted for individual use or for general purposes. These were offered to Philadelphia distributors by Price and Pierce, who are sales agents for the Quaker City territory, as well as New York City and other eastern sections. The new line will augment the southern grades of kraft handled by the firm.

Peerless Paper Specialty Co. Opens New York Office

A metropolitan office has been added to the sales division of Peerless Paper Specialty, Inc., with Philadelphia main plant at Tulip and Tioga streets where W. E. Horn is manager. The firm has acquired New York offices at 305 Broadway where the sales division is under management of Jack Cohen, who formerly represented the Baeder Adamson Company. Simultaneously with the opening of the New York sales offices the firm announced its entrance into the sand paper and glue jobbing division of the industry and is now stocked with these products. These brands will be an adjunct of the gummed tape and gummed paper converting business which the concern established several years ago. The manager of the New York offices just opened, Jack Cohen, will cover the metropolitan trade where he has a larger following as result of his many years affiliation with the Baeder Adamson Company of this city before its recent merger of the sand paper division with the Minnesota Mining and Manufacturing Company and its glue section with the American Glue Company. He will also supervise the sales of gummed tape and sheets manufactured under the Peerless brands.

Thomas W. Price Co. To Hold Outing

The Vici Club, made up of members affiliated with the Thomas W. Price Company, fine paper dealers, 50 Ludlow street, will hold the outing that was postponed a month ago on Saturday of this week at the Kugler Mohican Club on the Delaware River. There will be a program of sports, singing, dancing and recitations of talent from the staff and a Pony Golf contest for the fifty associates of the firm. President Thomas R. Fort, Jr., and his son and associate in the business, Norman Fort, will join with the workers in the day's outing. The committee in charge of arrangements includes the officers of the Vici Club, President John Baker Tuttle, Secretary Harry Werner, and Treasurer Willis Benner.

Business Improving in Miami Valley

DAYTON, Ohio, September 22, 1930—Business gradually is on the mend, although members of the paper trade see no sudden turn, and in some quarters it is even difficult to find more than a medium amount of optimism.

Better feeling prevailed here this week by the showing of the National Cash Register Company which recorded the heaviest sales of accounting machines in the United States and Canada for several months. Inasmuch as these machines are used in banks, retail and wholesale establishments and in general business concerns and offices, the view is taken that many manufacturers and dealers are hopeful of improved business within a short time.

W. B. Mayo, chief engineer for the Ford Motor Company, had occasion to go to Hamilton last week on business, and his opinion may be helpful to paper men.

"Business in general is on the upturn," he asserted, "and within a few months will reach the volume recorded for 1928."

Of course, he did not specify the paper business, but if his prediction is borne out on general principles, the paper and allied trades will assuredly obtain their share of the prosperity he forecasts. Hamilton was Mr. Mayo's former home.

"The upturn in business began more than a month ago," Mr. Mayo stated. "It is continuing. But this return will not be like a rocket. It will be gradual. All indications in the automobile trade and other industries point to this continuous improvement until the volume of business will reach that of 1928.

"The year 1929 was abnormal and it is unwise to believe that the 1920 business will be repeated.

"Inventories taken by industries throughout the country show that few supplies have been purchased. Manufacturers have reduced their stocks to a minimum and it will be this fact that will bring about better business conditions.

"The need for supplies and equipment in mills and factories is arising and will continue to arise within the next few months, bringing about a healthy condition throughout the United States."

Fire Destroys Hemlock In Wisconsin

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 29, 1930.—The first loss of any consequence from the many forest fires raging in Wisconsin during the protracted dry spell was experienced by the Wausau Paper Mills Company, of Brokaw, Wis. Flames reached a pile of logs decked on a landing near Newwood, Wis., and consumed 500,000 feet of hemlock before they could be checked. The loss is estimated at $10,000. The fire also touched a tract of standing hemlock owned by the company but did little damage. Twenty-five workers from the mill were sent out to help fight the fires. Timber owned by the Nekoosa-Edwards Paper Company also was endangered but the fires were fought back until relief came last week with soaking rains, the first in many weeks. It is believed the danger is now past.

Chicago Paper Market Position Little Changed

Current Purchasing Mostly Consists of Small Quantities For Immediate Requirements—Paper Distributors Working With Very Slim Inventory—Consumers Urged to Stock Standard Grades In Anticipation of Normal Fall Trade

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., September 29, 1930.—Unseasonably warm weather has continued to retard consumer buying in the Chicago paper market and reports this week from various representatives of lines indicate that there is very little change over conditions at the end of last week. Buying is in small qauntities and paper distributors are going on with a very slim inventory. Any appreciable suspension is immediately noted by a rapid influx of "on demand" orders. It is reported that houses in a position to fill orders satisfactorily are going along in fairly good shape. No change is noted in news print except that a noted increase in Fall uses for that grade is looked upon as encouraging. Jobbers are urging buyers to stock coarse papers, krafts, bags, twine, gummed tape, etc., in anticipation of a normal Fall trade and this constant effort is getting some results, although wrapping paper prices in general are considerably deflated, according to reports. Tissues are expecting to pick up and go into a big Fall season in a very short time. Chicago paper executives are also busy making plans for the holding of the National Paper Trade Association meetings here the week of October 6.

National Paper Trade Convention Program

Plans are now being made for the Fall Meeting of the National Paper Trade Association to be held at the Stevens Hotel, Chicago, October 6, 7 and 8 and the advance program indicates plenty of educational discussion with very little, if any, of the entertainment features scheduled. With allied organizations also coming into Chicago for the Fall program Chicago will be the focal point for much of the industry during the week. The National Paper Trade Association program opens at 9:30 a. m. on October 6 with a meeting of the Survey and Credit Committee of the Fine Paper Division in Room 6. Following are: Survey Committee of the Wrapping Paper Division, Room 1; Kraft Committee and Council, Room 3, and Gummed Tape Committee, Room 5, all at 9:30. At 11:00 a. m. the Tissue Committee will meet in Room 7. At 2:30 p. m. the Executive Committee of the Wrapping Paper Division will meet in Room 4 with Vice-President Blackman presiding. Reports of bag, kraft, twine, tissue, gummed tape and survey committees will be given. At the same time on October 6 the Executive and Administrative Committees of the Fine Paper Division will meet in Room 1 with Vice-President Miller presiding. President Warner will open the meeting and his remarks will be followed by reports of the Survey and Credit Committee, of which A. W. Leslie is chairman, and of the Committee on Postal Matters, of which G. W. Ward is chairman. A discussion of current activities will also be given by F. E. Floyd, executive secretary.

The Twine Committee will meet in Room 2 at 2:30 p. m. and the Bag Committee in Room 6 at 4:00 p. m. An hour later the Trade Relation Committee, wrapping paper division meets in Room 7. The Board of Directors will meet at 8:00 p. m. in Room 1.

An important meeting will be held at 9:30 a. m. on October 7, when the Cost Accounting meeting is scheduled with K. S. Warner, president, presiding. A full discussion of the activities and program of the Fine and Wrapping Paper Survey Committees will feature the open discussion. A representative of a widely known firm of public accountants will be present. At 2:30 p. m. the Fine Paper Division of the National Paper Trade Association will meet in the North Ball Room of the Stevens, with Vice-President J. F. Miller presiding. Reports of current activities will feature. At 9:30 a. m. on Wednesday, October 8, the Wrapping Paper Division will hold its big general session, with Vice-President A. W. Blackman presiding. General market conditions and various problems confronting the trade will be discussed. Reports will be given on the activities of the kraft, twine, bag, tissue, gummed tape and other active committees. A nationally known speaker will be present at the meeting.

Chicago Paper Merchants to Meet

The Chicago Paper Association will meet on Tuesday evening, September 30 at the Bismarck Hotel, according to D. F. Peck, president. A part of the evening's program will undoubtedly be given over to a continued discussion of paper bag prices. According to Mr. Peck the association will not accept the new schedule of prices as announced in an earlier edition of the Paper Trade Journal. The association will also lay plans for the Fall meeting of the National Paper Trade Association with particular reference to the meeting of the Middle States Wrapping Association which will be held at the Stevens Hotel, Chicago, on Tuesday noon, October 7. Leo Altholz, of Inlander-Steindler, is president of the Middle States group as well as chairman of the board of the Chicago Paper Association. He will preside at the noon luncheon on October 7.

News of the Trade

An unusually large number of members of the Paperboard Industries Association attended the recent regular meeting at the Drake Hotel, Chicago, September 23, 24 and 25. A feature of the meeting was the appointment of nominating committees for the purpose of electing a president and group officers at the coming Annual Meeting to be held in New York City in November. A plan, used for the first time at this meeting, to have the three group meetings—Paperboard, Folding Box and Container—all on one day together with the luncheon for all members—was successful. Thursday, September 25, was given over to an important general meeting including the Trade Practice Session, at which Gilbert H. Montague, Trade Practice Counsel, spoke.

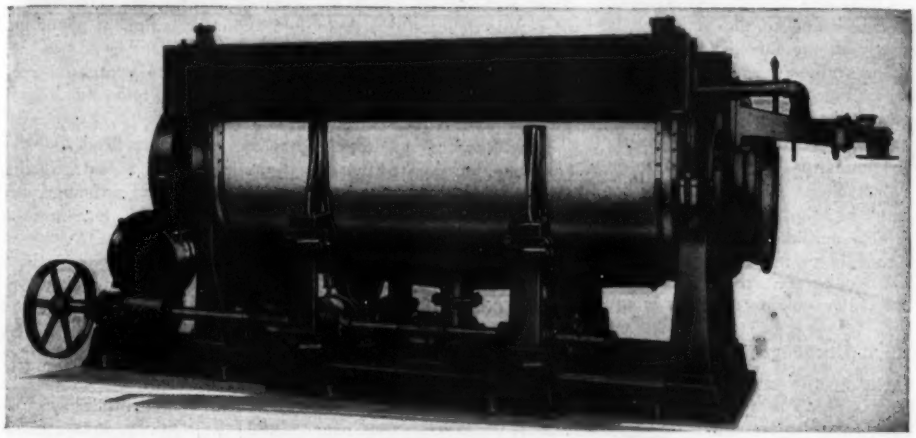
The Empire Paper Company has just issued a very attractive color swatch of their line of Emco Onion Skin papers described as a "thin bond paper of high quality and made from new rags." Emco Onion Skin comes in white, blue, goldenrod, green, cherry, canary, opaline, pink and tuscan—all colors coming in both glazes and unglazed finishes. The paper is quoted as fine for thin letterheads, office records, factory forms, specifications, diagrams, charts, etc. From the makers, Knowlton Brothers and through the distributors, Empire Paper Company, comes another interesting little four-page folder describing "Indian Head" papers coming in ten colors and two finishes—antique and the new ripple—and reported unusually satisfactory for advertising usages. The folder is printed on Indian Head Cover, White Ripple Finish.

C. O. Bachman Goes With Ryther & Pringle

C. O. Bachman, former consulting engineer, of Franklin, Ohio, who has been closely identified with pulp and paper mills in the middle west, has recently become associated with the Ryther & Pringle Company, of Carthage, N. Y. Mr. Bachman is now making his first visit through the middle west in the interest of his new connections.

BIRD MACHINERY

BIRD SCREENS



EVERY new Fourdrinier to go into production during 1930 gets its stock through Bird Screens.

Let us give you the facts on Bird Screen performance, show you how they will lower costs in your mill.

BIRD MACHINE COMPANY

SOUTH WALPOLE ◆ MASSACHUSETTS

4415

Boston Paper Market Conditions Improving

Paper Distributors Experience Substantial Increase In Both Inquiries and Sales — Various Grades of Fine Paper Moving In Greater Volume Than For Some Time Past—Supplies of Kraft Paper Going Forward In Satisfactory Manner

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 29.—Conditions in the Boston paper market are improving as a whole, according to the majority of the trade in this vicinity, particularly in the fine paper division. With the advent of Fall, there is naturally a greater movement, at the same time with a better feeling in regard to business generally. Some report a substantial increase in both inquiries and sales since the first of the month. Kraft is moving fairly well, with the expected seasonal stimulation. The reduction in the price of bags is somewhat disturbing. A dealer says that the trade was "all set to go ahead," but that the reduction "put a crimp in business." There is also considerable complaint in regard to values of kraft—"back to 1914 prices." Specialties are a little more active. The opinion is expressed that with more effort on the part of salesmen a greater volume of sales would result.

Box Board Situation Unchanged

The box board situation is practically the same. The market is very spotty. Some improvement is noted in some of the box factories, lending encouragement to board dealers supplying them. The paper box division of the Shaw Stocking Company, Lowell, Mass., which sells to the trade generally, is reported to be doing well. The C. F. Hatch Company of the same city, is putting a new line of cigar boxes on the market. The price situation is the cause for considerable complaint, Chip board continues at $30, f. o. b. mill, and understood to be firmly held at this level, although quoted in New York at $27.50.

Paper stock remains generally dull. An expected movement has not materialized to any extent, at least, and there are said to be no signs of improvement. Business among mills manufacturing fiber board is seasonably better, but the improvement is not expected to last indefinitely, according to a paper stock dealer.

News of the Trade

The Baird & Bartlett Company has purchased the property occupied by the firm at 61-63 High street. The parcel, which was conveyed to the company by Charles W. Varey, runs through to 231-233 Purchase street and consists of approximately 2,600 square feet of land and a four-story building, all assessed at $76,000. The Baird & Bartlett Company is one of the oldest paper box board and paper concerns and has occupied the premises for a number of years. The company will remain there for the present, planning to remodel later.

John Carter & Co., Inc., is issuing a new sample book of Whitehall Cover and Text, manufactured by the Hampshire Paper Co., South Hadley Falls, Mass. These papers of quality and elegance are exceptionally well adapted for direct mail advertising, booklets and programs. They lend themselves admirably to the modernistic trend, whose dominant keynote is color, and are made in white and five pastel colors: India, royal blue, café, drawn gray and lawn green.

The Martin Cantine Company, Saugerties, N. Y., held a get-to-gether meeting Friday, with representatives of the company attending from New York, Connecticut, Massachusetts and Rhode Island. Features of the day included a tour through the mill of the concern, followed by a motor trip and dinner in the Catskill Mountains.

The September issue of "How," published by Tileston & Hollingsworth and edited by A. V. Howland, contains an analysis of the September calendar sheet by Charles R. Capon. Among other interesting articles is a discussion of Crinoline Cover and Text in Café on which the number is printed. The firm considers this delicate tint their outstanding creation in paper making through more than 125 years.

William Bond Wheelwright, New England representative of the Seaman Paper Company, New York, has removed from 126 Massachusetts avenue to 185 Summer street.

The New England Paper Company, Inc., paper, bags and twine, has been incoporated with a capitalization of $6,000; 60 shares of $100 each. The incorporators are Harry Szathmary, president; Jacob Shay, 16 Fuller street, Waltham, treasurer, and Saul H. Shapiro.

The Union Sandpaper Company, abrasive paper, cloth and other products, has been incorporated with a capitalization of $1,000,300; 1,003 shares of $100 each. The incorporators are Joseph O. Procter, Jr., president; Richard M. Nichols, 84 State street, Boston, and Frank B. Wallis.

W. L. Chadwick, director of sales for the United Paperboard Company, was in Boston for a week, visiting the local office.

B. J. Neiberg's waste paper warehouse, Quincy, Mass., recently damaged by fire, is to be rebuilt in the near future.

The plant of the Davis Paper Company, West Hopkinton, N. H., was closed September 23, 24 and 25 because of the County Fair.

Southern Paper Co. Expands

NEW ORLEANS, La., September 29, 1930.—The success of the Southern Paper Company, Ltd., clearly demonstrates that the element of service largely enters into the conduct of all lines of business, regardless of its nature. The spirit of service in the instance of this company has caused it to enjoy a rapid growth, which has made it necessary for the Southern Paper Company to provide larger floor space for its plant at 535-537 Tchoupitoulas street.

"In a recent transaction," said Jules Wolbrette, president of the company, "we have acquired additional floor space at 531 and 533 Tchoupitoulas street, adjoining our plant, which will provide us with double the amount of space which we now occupy.

"Our records show that every month during this year has shown an increase in business over the corresponding month in 1929. We are very proud of this record, and take it as an indication that our business will continue to increase. Our optimistic outlook caused us to feel that we should enlarge our plant to meet this anticipated further better business."

Mr. Wolbrette, who has been with this firm for the past 28 years, feels that the service that the Southern Paper Company renders its customers is greatly responsible for the success of the business.

American Writing Featured in Tercentenary

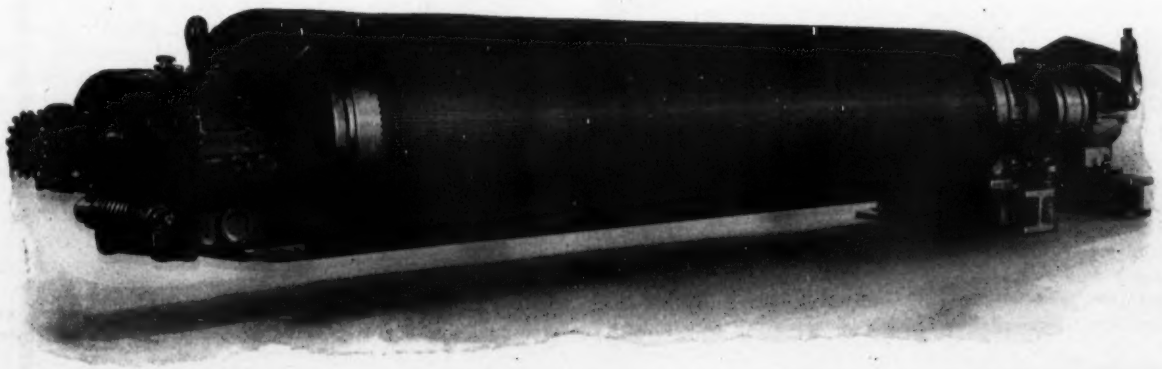
[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., September 30, 1930.—A composite picture showing the plants of the American Writing Paper Company, Inc. in a group is contained in a booklet issued by the Commercial Industrial and Publicity Bureau of Boston in connection with the Massachusetts Tercentenary celebration. The flatiron building in Holyoke which houses the general offices is in the foreground of the picture. The booklet says that the mills of this Company are typical of the plants in which papermaking is carried on in New England.

DOWNINGTON
KULBERRY PATENT SUCTION ROLL

Cantilever

The illustration shows a Suction Couch Roll 36" diameter, 166" drilled face, of the overhung, self-supporting type. This roll was built for a Pacific Coast Mill and is arranged with rear end suction pump connection. It has all the advantages of the Downingtown type of roll, namely, small bearings, front end adjustments for deckles and packing strips, means for removing packing strips through ports in end heads, etc., *plus* the cantilever feature. For further information, address the Downingtown Manufacturing Co., Downingtown, Pa.



Demand For Paper Is Expanding In Ontario

Fairly Satisfactory Revival Experienced In Sales of Various Grades of Fine Paper—Manufacturers Report Booking of Good Tonnages, Particularly of Book Papers—Coated Paper Stock In Improved Request, Although Below Normal

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, September 29, 1930.—While the wholesale paper market in Ontario may be termed somewhat spotty, the testimony of most of the paper merchants is that there is a greater buoyancy to business just now than there has been for some months. There is now a more pronounced tendency to quantity buying and there is strong evidence that a lot of big printing jobs that have been held back during the past several months of depression are now being, or about to be, released. The results are apparent in the mill trade as well as in the distributing end of the paper business. There has been a fair revival in sales of fine papers and mills report quite good tonnages, particularly in the line of book papers. There is also a better demand for coated stock, although this product is some distance yet from normal demand. The coarse paper market is still somewhat draggy, with wrappings and paper bags moving considerably behind the fine paper market.

Both the board market and the paper box industry are beginning to pick up and it would appear as if the over-production in the paper board field in Canada were gradually being corrected as the demand for the product increases. Converted paper lines are showing some hesitancy and while orders for future delivery are good, current business is light. Envelope manufacturers are operating lightly and there is only a fair demand for manufactured stationery lines generally. Tissue and toilet mills are quite busy under a stimulated demand for most lines of light weight paper, such as towels, napkins and general specialty lines. The rag and paper stock market has undergone a rather sudden change of late and demand, from being very strong, has slackened off considerably, largely due to the decrease in demand from the board mills. Supplies are only fair, but fully equal to the present diminished demand. The printing trade is gradually righting itself and some good orders that have been held back are now being placed with benefit to the paper mill and merchant. The general paper situation is considered greatly improved and the outlook for Fall business is bright.

Paper Box Business Improving

While the paper box manufacturing industry has been operating lightly during the summer as a result of the holiday season and adverse business conditions generally throughout the province, the tide seems to be in the process of turning and better business is now in sight. Orders are now beginning to be placed in a small way and ere the Fall is well advanced it is believed that the whole industry will have returned to normal. Probably the paper box industry has been hit less by hard times in Canada than most lines of commercial activity. It is a fact that comparatively few paper box concerns have failed to weather the gale and those were among the smaller operators. The bigger firms have experienced no difficulty, aside from temporary cessation of business and in nearly every case they have managed to finance their institutions during the quiet months of business depression. They are now in a good position to take advantage of the business that is going to offer itself this fall and it is believed that the industry as a whole will be in a prosperous condition again in time for a lively fall and winter trade. Business generally throughout the province is improving and it is due for greater betterment now that the Canadian Government has raised the tariff on certain lines of manufactured goods coming in from the United States and Great Britain with a view to protecting Canadian manufacturers. Most of the paper box makers, while not directly affected by the tariff changes, declare that the new tariff rates on paper lines and box board will ultimately result in better business in their line, for the paper box board and paper departments are closely linked with paper box board manufacture.

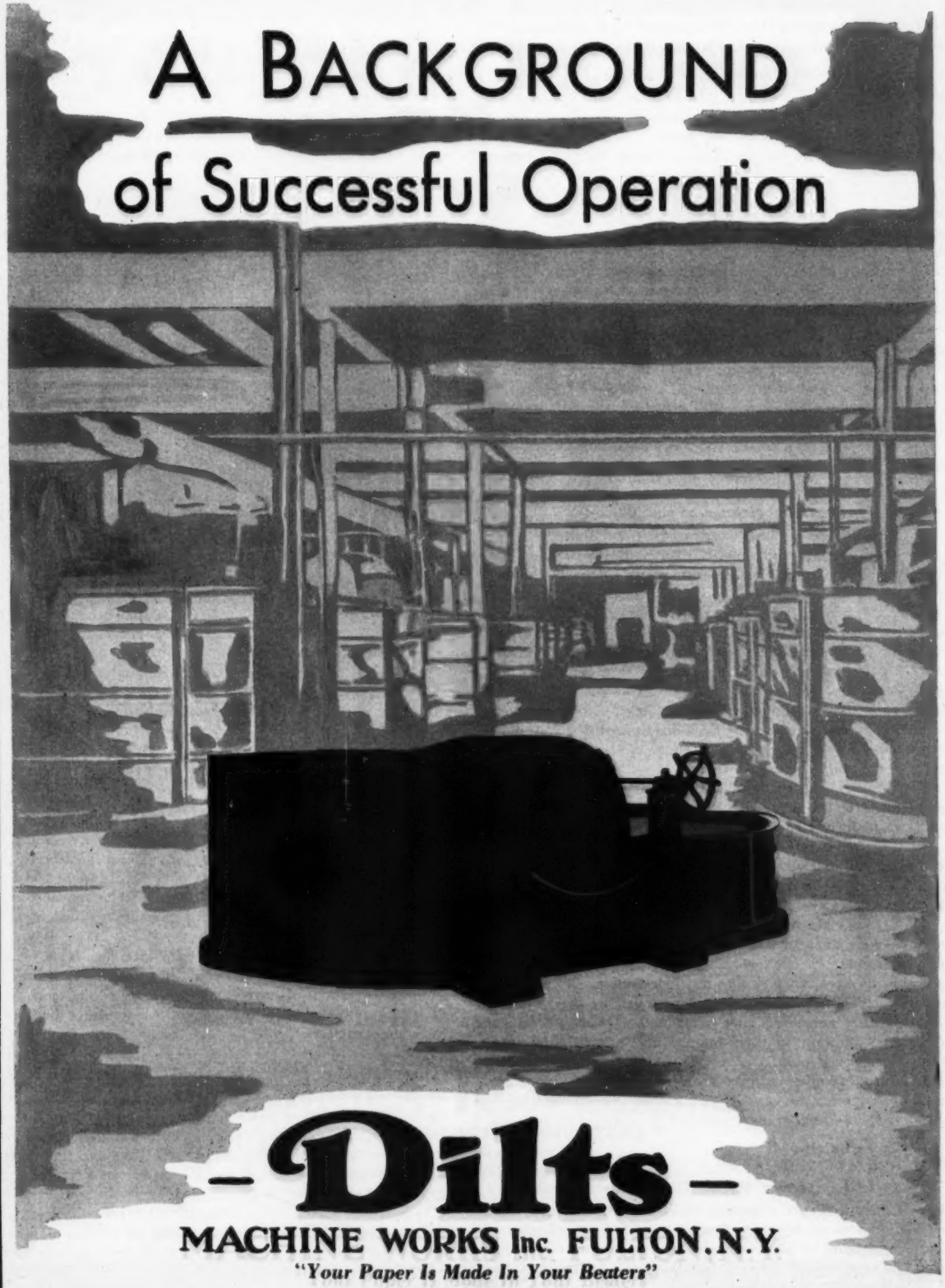
Overseas Market Key to Situation

C. V. Hodder, secretary of the Canadian Paper Box Manufacturers Association, sees in the increased tariff rates a move that is going to react favorably on Canadian business of the box makers and one that is going to help Canadian business interests generally, although this may not be observable at once. According to Mr. Hodder the new rates will more directly affect the corrugated board manufacturers and makers of fiber board, while the anti-dumping measure will be of more direct benefit to the folding and set up sections of the paper box industry as it should stop unfair competition where there is a quantity price on Canadian requirements on a long run basis of United States requirements. "The problem seems to be one in which our ability to retain the overseas market is involved," said he. "It is a question whether or not the box manufacturing industry can be classed as a domestic market for we are dependent to a very large extent on our export markets for business in the packaging line. So if we can retain our export sources of sale in face of the raised tariff it should have good and far reaching results. One thing is certain and that is that the paper box industry, nor any other branch of manufacture in Canada, will take it upon themselves to raise prices unless they are justified by increased prices of raw material."

More Views on Tariff Changes

The changes in the tariff, which have just been announced, are of deep interest to paper men. On being interviewed S. F. Duncan, president of Provincial Paper, Ltd., Toronto, said that in his opinion that changes would mean a certain stimulus to business among the board mills and in the wrapping paper and book paper sections, with an increase of employment in Canadian mills, together with the increased use of Canadian material consumed in the making of paper. George W. Pauline, managing director of Alliance Paper Mills, Ltd., said that he did not look on the matter of tariff revision from the viewpoint of the paper industry alone, his feeling that what was good for Canada as a whole was good for individual industries. He emphasized the point that paper manufacturers did not look upon added protection as something to enable them to boost prices, but as enabling them to employ more labor and so operate more economically, passing on these benefits to the consumer. Norman E. Wainwright, president of the Don Valley Paper Mills, Ltd., Toronto, while approving of the cancellation of item 106, which gave a drawback of 80 per cent of duty on paper imported for the printing of magazines such as farm periodicals, etc., argued that the treatment meted out to wrapping paper manufacturers, who were given increased protection, should also have been accorded to the manufactures of fine papers. The latter, he contended, were entitled to additional protection by reason of the limited market that they served, which handicapped enormously in competition in a Canadian market with surplus products of United States mills, which, by reason of massed production and comparatively infrequent changes on the machines, be

A BACKGROUND of Successful Operation



— Dilts —

MACHINE WORKS Inc. FULTON, N.Y.

"Your Paper Is Made In Your Beaters"

dumped into Canada. Charles V. Syrett, president of the C. V. Syrett Paper Company, Ltd., Toronto, well known paper merchants, believed that the wrapping paper men were entitled to the additional protection they were getting because of the competition they were facing from the southern United States mills, where costs of wood, labor, etc. were much lower than in Canada.

Abitibi Camp Nearly Complete

W. C. Millar, chief sanitary inspector for the Ontario Department of Health, returned to Toronto this week and reports that the work at Abitibi Canyon, where a 275,000 h.p. electric plant is being installed for the Ontario Power Service Corporation, a subsidiary of the Abitibi Power and Paper Company, is well under way. A hospital has been built which is in charge of a doctor and orderlies. This is being used for first treatments of major cases and for minor cases. When the patient is seriously ill or surgical attention is needed the patient is forwarded by train to the hospital at Cochrane or Iroquois Falls. This was one of the first buildings erected so that the men would have absolutely proper attention. Other buildings already up and in use are a large sleeping camp, cookery, dining camp, storehouse, contractor's and engineer's bunkhouse, foreman's bunkhouse and post office. There are already 725 men at work in the camp and in the course of a few days all will have the best of accommodation, as other buildings almost completed are staff house, bakery, large cookery and dining camp, commissary, two cottages, machine shop and blacksmith shop. Mr. Millar states that the camp is one of the most sanitary camps that have ever been built in Ontario.

Notes and Jottings of the Trade

E. S. Clark, of the Hollingsworth and Vose Company, manufacturers of rope, jute and manilla papers, Boston, Mass., was a caller on a section of the Toronto paper trade a few days ago.

In order to give better service, Paper Sales, Ltd., King street West, Toronto, have stocked Drsine English Cover Papers, of which John Dickinson & Co., London, Eng., are the manufacturers. Direct import orders are being taken three to four weeks for delivery.

High grade paper products of the Worthy Paper Company were on exhibition at the Buntin Reid Company's warehouse for three days and many in the paper and printing trades accepted invitations to inspect them.

Under the auspices of the Toronto Carton Council a golf tournament was staged at The Royal York Golf Club. J. W. Hewitt, president of Paper Sales, Ltd., was the low score among the twenty-seven players, and he was closely followed by George Hancock, of Galt.

A movement is on among the baking firms in Saskatoon, Sask., for the establishment of a paper box and bag factory at that point. Officials of the baking plants state that the demands of bakers alone would keep a fair-sized factory busy the entire year round.

As a direct consequence of the tariff protection the textile industry by the recent tariff changes inaugurated by the Dominion Government, it is announced that Courtaulds (Canada) Ltd., will build a large addition to their factory at Cornwall, the large quantities of spruce pulp used by Courtaulds Ltd., in making the yarn, are brought entirely from Northern Ontario, and Canada also supplies the caustic soda, carbon bisulphide, sodium sulphide and other materials employed in converting the pulp into rayon thread.

New L. L. Brown Paper Co. Sample Book

The L. L. Brown Paper Company, Adams, Mass., has just issued a new sample book of Greylock Bond. In addition to samples of the various weights, it also embraces several specimens of die-stamped and lithographed letter headings. Greylock Bond is certified to be made from 75 per cent white linen and cotton clippings.

New Buffalo Forge Unit Heater

The Buffalo Forge Company, engineers and manufacturers, of Buffalo, N. Y., have just published an attractive illustrated circular describing their new Model "B" Breezo-Fin Unit Heater.

Some of the features of the new model are as follows: The casing is good-looking and substantial. It is die-stamped and welded, with reinforced corners. It will stand knocking about, and there are no breakable parts.

Simple clip hangers are furnished as standard equipment. They can be easily attached to any two of the four corners, providing inexpensive support for either platform, side bracket, or top suspension.

The fan is an efficient die-stamped design, improved in air delivery without increased power consumption. It is unusually quiet. The bracket is die-stamped and welded, unbreakable. The discharge louvers are each separately adjustable to direct

MODEL "B" BREEZO-FIN UNIT HEATER

the air where desired. The air velocity is sufficient to provide positive distribution.

The heater element is Aerofin—the standard lightweight heater made of brass tube and copper fin, non-corrosive and highly efficient. Heaters are suitable for any steam pressure from 2 lbs. to 250 lbs. These heating coils have been designed especially for Model "B" Heaters with vertical supply on top and vertical drip at bottom, fool proof against expansion, condensate and water-hammer troubles.

The volume of air handled by each size has been increased and the final temperatures lowered thus offering a more satisfactory distribution of warm air in the working zone. Also less steam is wasted, due to lower air temperatures under roofs with consequent less B. T. U. loss through roofs and skylights.

International Hydro-Electric Declares Dividend

The Board of Directors of International Hydro-Electric System have declared a quarterly dividend of eighty-seven and one-half cents a share, payable October 15, 1930, to shareholders of record at the close of business September 25, 1930, on the preferred stock-convertible $3.50 series, as well as on the Preferred stock-convertible $3.50 series as represented by its interim certificates.

The board of directors of International Hydro-Electric System have declared a stock dividend of 1/50th of a share of Class A stock for each share of such Class A stock held, payable October 15, 1930, to shareholders of record at the close of business September 25, 1930.

YOU CAN DEPEND ON WITCO PARIS BLACK

Witco Paris Black is essentially a quality product . . . a product of absolute uniformity. Witco standards of excellence are the paper makers' insurance for satisfactory and profitable manufacture.
And in Witco Paris Black, as in Witco Blanc Fixe and Earth Colors, you profit by our position as first hands.

Buy Direct and Profit Directly

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TRENTON & BOSTON

Witco owned and operated: Century Carbon Co. and The Pioneer Asphalt Co.

COL. PRICE RESIGNS FROM NEWSPRINT INSTITUTE

(*Continued from page 25*)

between these companies and American customers. I have, however, become convinced during this time that the expressed purposes of the Institute and my efforts to accomplish them have been and are defeated by the unwillingness of members to conform to either the spirit or the terms of their membership agreement.

"In the case of one important Institute company this unwillingness has recently taken the form of aggressive action which is in opposition to the interests of other member companies and which, in my opinion, constitutes a direct and flagrant violation of the Institute agreement.

"Under these circumstances, it has become fully apparent to me that, as chairman of the Institute, I have been placed in the position of being an unwilling party to breaches of faith and in the position of acting to the disadvantage of shareholders whom it is my duty to protect.

"I decline to tolerate such a position further, and, in consequence, I beg herewith to submit my resignation as chairman of the Institute. I must also advise you that, in view of these circumstances and the recent developments, Price Brothers & Co., Ltd., now intends to adopt immediately whatever independence of policy and action it may be compelled to follow in order to protect its position and the interests of its shareholders against the aggression already referred to.

"I sincerely regret the conditions within the Institute which make necessary this action on my part, but I must make clear that it is effective today and that it is not subject to reconsideration.

"Yours faithfully,
(Signed) "JOHN H. PRICE."

Supplementing this letter Colonel Price, in a statement to the Canadian Press, the co-operative news gathering agency of the Canadian newspapers, outlined the status of the news print industry in Canada, and the purposes with which the institute operated. The necessity of curtailment to relieve a glutted market, he said, had necessitated supervision of the news print institute in order that sales might be conducted in a manner fair to all members. The institute operated as a pool, he explained, and members were supposed to abide by its rulings. Its board of governors, he said, had as its object the stabilization of the industry. Their efforts were directed to prevent scrambling for markets on the part of individual firms, which would have meant gain for some and heavy loss for others.

Recently, however, Colonel Price said, there was a growing tendency among members to scramble for markets, disregarding the rules of the institute. He had issued a warning, he said, at the time he undertook to become chairman of the body.

He now found, he declared, that not only had the aggressive conduct of certain members not ceased, but that one member had become aggressive in respect to his own company, Price Brothers & Co., Ltd. It was this that finally decided him to resign.

Support for Resignation

Ernest Rossiter, president of the St. Lawrence Corporation, Ltd., immediately after the publication of Colonel Price's letter, wired the secretary of the Newsprint Institute of Canada at Montreal, that he supported the resignation of Colonel J. H. Price, as chairman of the institute.

"Please inform the board of governors," he wired, "that St. Lawrence Corporation will take whatever similar steps are necessary to protect its present position."

Mr. Rossiter in making public the telegram also made public a letter confirming it, in which he wrote the secretary of the Newsprint Institute he considered Colonel Price's resignation "as fully justified and necessary in view of the recent definite violations of the institute agreement."

Position of the Hearst Interests

Two years ago the Hearst interests signed a five-year contract with the International Paper Company, which has until December 31, 1933, to run. This contract, however, was for only one-third of Hearst's news print requirements, enabling him to place his surplus requirements where he pleased. The contract with International was significant, however, because it was the first time in about fifteen years International had obtained any of his business. The reason for the switch to International was the fact that Hearst's previous contract with the former Canadian news print sales agency has ended in litigation. That Hearst should now be willing again to contract with the factors with whom he had previously experienced difficulty is explained, some interests maintain, by concessions through stock interest or otherwise, although any price cut has been officially denied.

The *Montreal Gazette*, commenting on the above says: "With various interests in the Newsprint Institute feeling that the present price of $55.20 a ton has been shaded by Canada Power in the case, however, it doubtless will be difficult to hold them in line. Since Price Bros. & Co. is a low-cost producer, it would be in a position to wage a good fight for a larger share of total consumption than it now obtains, and the resignation of Colonel Price from the leadership of the institute might well be the forerunner of such action.

"While the eastern news print market was becoming unsettled by recent developments on the Pacific Coast the announcement of a price of $58 a ton by the Powell River Company was followed by the announcement that Crown Zellerbach would meet this price."

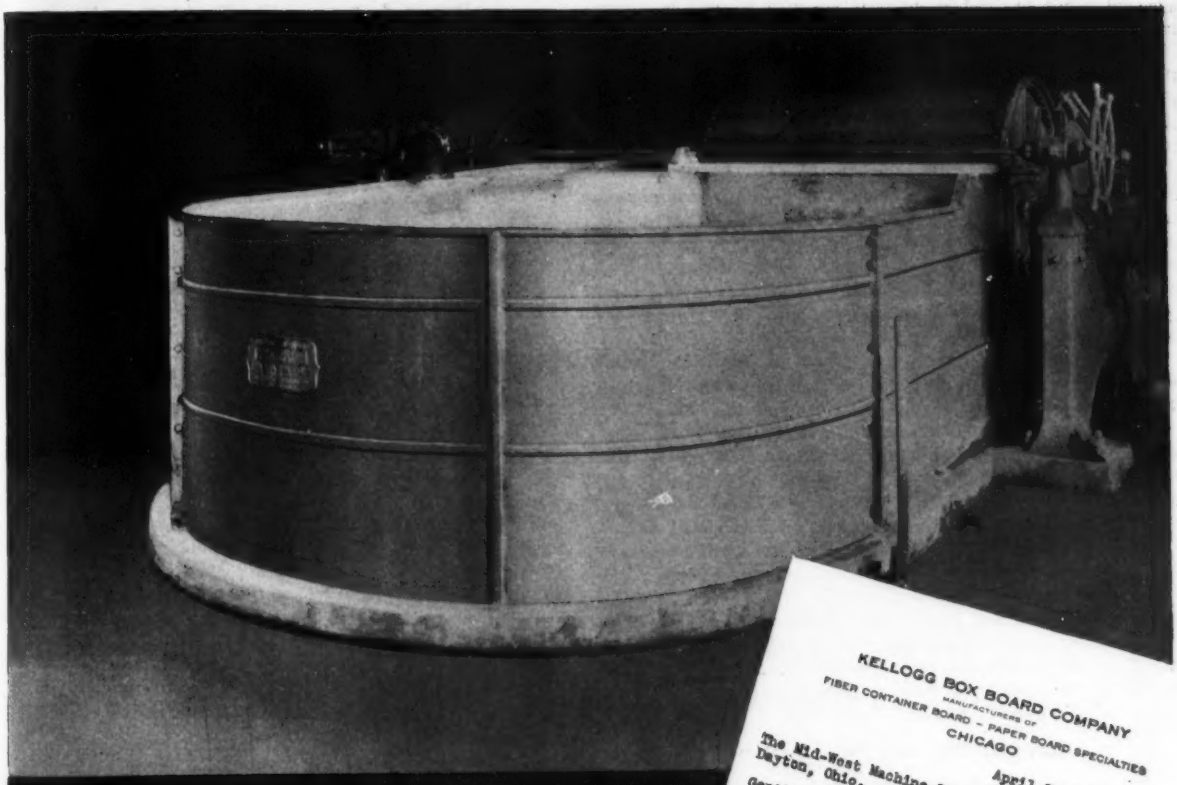
The Position of Canada Power and Paper

There can be no doubt that Canada Power and Paper Corporation has immensely strengthened its position through the closer working arrangements with the Hearst interests, which are now stated to own approximately 20 per cent of Canada Power and Paper Stock. Despatches from Newfoundland support the conclusion that Canada Power will now push the scheme to develop the Gander River enterprise in the sister Dominion, and will eventually erect a mill there with an ultimate capacity of 310,000 tons of news print per annum. This would take care of about three quarters of the Hearst news print requirements, covering the contract now in force with the International Paper Company. Hearst has a contract with the Lake St. John Paper Company for the balance, and it is thought that Canada Power and Paper will eventually supply this, amounting to somewhere around 100,000 tons per annum. The effect will not be immediate as the contract with International runs until December, 1933, and with Lake St. John Paper for another six or seven years.

Supporting the contention as to the ultimate benefit to Canada Power and Paper is the statement of Frank W. Clarke, of the Canada Power, that the arrangement with the Hearst interests involves the adoption by the latter organization of a policy in respect to their supply of news print similar to that adopted by the *New York Times*, the *Chicago Tribune*, and the *New York Daily News*, and that the Hearst interests will pay the market price for their paper, relying for protection of their future requirements upon their position as shareholders of the manufacturer, which will "in future supply a large proportion of their requirements."

The Position in Newfoundland

Negotiations are reported to be proceeding favorably between the Newfoundland government, on the one hand, and representatives of Canada Power and the Hearst interests, on the other hand. The strong financial position of Canada Power and Paper, now the largest producer of news print in Canada, assures ability to carry through the Gander River project and give it able man-



KELLOGG BOX BOARD COMPANY
MANUFACTURERS OF
FIBER CONTAINER BOARD — PAPER BOARD SPECIALTIES
CHICAGO

April 2, 1930.

The Mid-West Machine Co.,
Dayton, Ohio.

Gentlemen:

I personally wish to state that this beater is measuring up to all that you claimed it would do. I have watched this beator perform day after day since it has been in service and believe that our stock consistencies are running as near uniform from this beater as it would be possible to obtain. I have noticed particularly the draught, the quickness and the cleanliness of dropping and wish to say that for general all around performance everyone here seems very much pleased.

Presuming that this information will be of some interest to you, we are.

Yours very truly,
KELLOGG BOX BOARD CO.

W B Nadly
SUPT.

WBN:FJ

MID-WEST BEATERS

Measured up to all performance claims *for* KELLOGG BOX BOARD COMPANY

UNIFORMITY of stock consistencies is an important factor in the treatment of Paper Pulp. Midwest Hi-Speed Beaters are enabling paper mill operators to obtain greater uniformity through more efficient and modern beater methods. As a result production has been increased (because Midwest Hi-Speed Beaters handle 50% more stock) with a marked reduction in labor and power costs. Write today for information that will pave the way for such savings in your mill.

MIDWEST-FULTON MACHINE CO.
DAYTON · OHIO

MID-WEST BEATERS — A WORLD OF DIFFERENCE — FULTON SYSTEMS

MID-WEST HI-SPEED BEATERS

agement, while the Hearst interests are in a position to guarantee absorption of the entire output of the mill.

As originally submitted to the Newfoundland government by the Reid-Hearst group, the project is revealed as being of a gigantic nature. The Government was asked to approve the change of site, to provide for a spur of 25 miles length from the Newfoundland Railway to the site, and to guarantee $15,000,000 of the $60,000,000 of bonds to be issued. It was stated at the time that the project could be financed without government guarantee, but the inclusion of the Government in the scheme was believed to have certain advantages in view of the fact that the great competitive enterprise at Cornerbrook is tied up with the Government through its guarantee of the bonds originally issued by the Armstrong-Whitworth interests when they proposed to build the mill.

In addition the Government was asked for certain concessions in Labrador in exchange for which a cash bonus was offered by the company and annual stumpage payments as the timber is cut.

The project involved an expenditure of $80,000,000 to acquire timber leases, to control the hydro-electric power plant of 100,000 h.p. capacity and to build a news print mill of 1,000 tons daily capacity. It was estimated that four years would be required to establish the mill and bring its operations up to proposed capacity.

The International Paper Company, which has a large interest in the news print industry in Newfoundland, strongly opposed the proposal, and it was turned down by the Government. The fact that Canada Power and Paper is now allied with the Reid-Hearst group in reviving the project has given a different complexion to the affair, and the general feeling is that it will now go through, despite the anticipation of strenuous opposition on the part of the International Paper Company.

Saguenay Pulp and Paper Settlement

Saguenay Pulp and Paper, successor to North American Pulp and Paper, which in turn became Quebec Pulp and Paper, is making a final settlement with preferred shareholders. The payment is one of 5 per cent which on a basis of $5 par value of the preferred stock, amounting to 25 cents a share. This applies to $3,500,000 of the preferred stock, and amounts to $175,000. As the distribution on the preferred stock will absorb the entire surplus now left in the hands of the liquidator, there will be nothing paid on the common.

Prince George Pulp and Paper

The holdings of the Prince George Pulp and Paper Company are reported to have been optioned by a syndicate headed by Frank P. James. It is expected that a field examination will shortly be undertaken. The British Columbia Government, while admitting unfavorable conditions for development, intimates that it would be unreasonable to expect the Government to further hold the concessions desired unless bona fide steps are taken within a reasonable time to carry on the enterprise.

Regular Quarterly Dividends Declared

At a meeting of the board of directors of the International Paper and Power Company, held last week, a regular quarterly dividend of one and three-quarters per cent on the 7 per cent cumulative preferred stock of the company, and a regular quarterly dividend of one and one-half per cent on the 6 per cent preferred stock of the company were declared payable October 15, 1930, to holders of record at the close of business September 25, 1930.

At a meeting of the board of directors of the International Paper Company held today, a regular quarterly dividend of one and three-quarters per cent on the cumulative 7 per cent preferred stock of the company, and a regular quarterly dividend of one and one-half per cent on the cumulative 6 per cent preferred stock of the company were declared payable October 15, 1930, to holders of record at the close of business September 25, 1930.

Beach & Arthur To Build New Plant

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., September 22, 1930—As an evidence of increasing paper industrial activity, a contract has been let for new factory and office buildings costing approximately $100,000, for Beach & Arthur, Inc., manufacturers of paper novelties. Work of clearing the site just south of Thirtieth street near the Nickel Plate railroad, already is in progress and the buildings are expected to be ready for occupancy by the Beach & Arthur December 1.

These buildings, with a power house, are to be the first units in a larger expansion program contemplated by the company. W. H. Arthur, the factory manager, and R. W. Beach, who has charge of sales and distribution, made no announcement of the nature of the products to be manufactured in the new plants, but it is understood that they are to include new items which have not been used in this country heretofore.

The new location is a tract 600 feet long by 200 feet wide with the railroad serving the plant on one entire side. The factory section is to be of monitor type construction, 300 feet by 200 feet, with concrete floor set four feet above the sidewalk and the railroad siding, for loading purposes. The interior framework is to be of structural steel with the exterior walls of hadyte blocks up to a point four feet above the floor and from this point to the roof will be entirely of glass. The entire plant will be equipped with automatic sprinklers.

The floor space will be divided by full length fire walls into three sections, the north section containing the shipping room and finished stock room, the center section containing the manufacturing department and the machine shop, and the south section will be used for raw material storage.

The building will be equipped with all modern conveniences for the comfort and safety of the employes, including an emergency hospital and rest rooms with shower baths. The office is a separate building 60 by 70 feet with walls of face brick with stone trim. North of the office will be a garage.

Beach & Arthur, Inc., were organized here about three years ago and because of rapid growth it has been necessary to obtain larger quarters. The company has manufactured paper novelties, the chief items being paper napkins, table cloths and plates which are made in a wide range of design and color. The company has a national distribution and makes shipments to various foreign countries also.

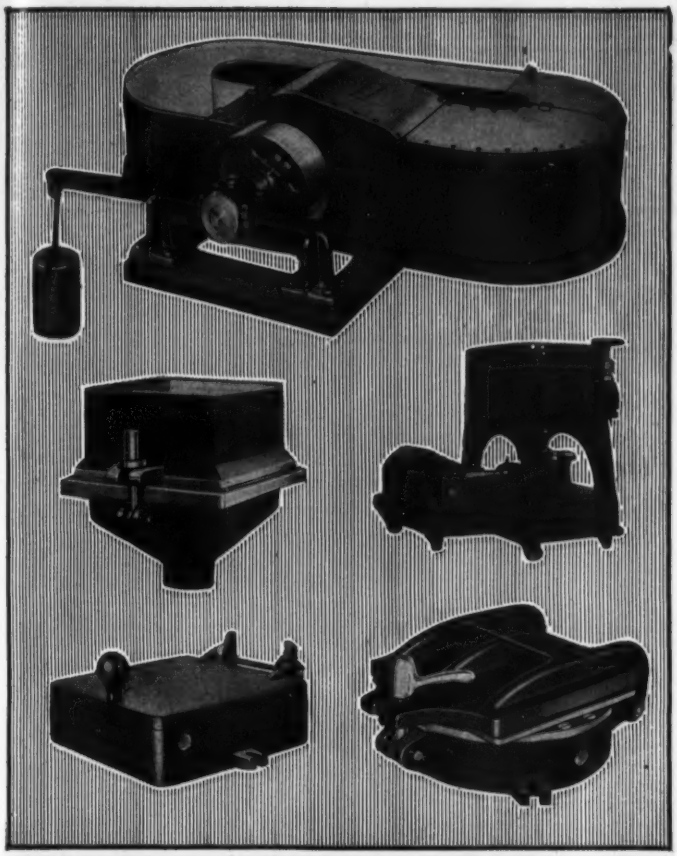
It recently added to the organization an engineer and machine designer, F. S. Boening, formerly of Bremen, Germany. He will have charge of the designing and construction of several machines which will be designed and built in the company's own machine shops.

Study Papermaking Machinery at Watertown

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., September 29, 1930.—Representatives of the Russian government are in this city studying methods used in the operation of papermaking machinery turned out at local plants. The men were sent here to acquaint themselves with American methods which will be used almost exclusively in the Volga River Paper Mill at Balahkna and the Bagley & Sewall Company is now turning out a large contract for the concern. In addition the engineers also plan to make themselves familiar with the methods used at the plant of the Coty Bag Company although as yet no contracts have been awarded to that concern.

The group arrived here a few days ago and it was announced that they would spend several weeks in traveling through the numerous paper mills before returning to their native country. It was learned that the Coty Bag Company has been carrying on negotiations with the Amtorg Trading Corporation relative to securing contracts for the sale of paper bag machines and there is a possibility that the concern will receive some of the future orders from the Russian government.



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QUALITY INSURANCE

Quality paper is something that does not just *happen*. Consistent quality must be watched, checked, tested and retested continuously.

The simplest and most efficient way to do this is through the use of Valley Laboratory Equipment. Progressive mills everywhere are finding it to be the best quality insurance.

You will too. You will find that continuous testing with Valley Equipment is the surest method of quality control.

In order to meet the new trend of continuous testing, various improvements have been made in Valley equipment. For example, the journals and fulcrum arm of the beaters are now equipped with ball bearings and the bars in the roll and bed plates are made of monel metal.

Let us tell you in detail more about the benefits Valley Laboratory Equipment will bring to you. Address your inquiry to the Valley Iron Works Co., Appleton, Wisconsin.

VALLEY

Equipment for Paper and Pulp Mills

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Western Mfg. & Sales Div.: Smith & Valley Iron Works Co., Portland, Ore.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

New Brunswick, N. J.—The Anheuser-Busch Company, Inc., 721 Pestlozzi street, St. Louis, Mo., manufacturer of beverages, etc., is reported negotiating for a tract of property at East New Brunswick, as a site for a new plant for the manufacture of paper containers and cartons. Proposed plant will consist of a number of brick and steel structures, reported to cost over $500,000, with machinery.

Westfield, Mass.—The Lockwood Envelope Specialties, Inc., recently organized by R. B. Lockwood and associates, is arranging for immediate production at a new local plant for paper converting service. Company has leased the ground floor of the local building of the United States Whip Company, Main street, for initial works, and necessary equipment has been installed. Large output is proposed. Mr. Lockwood recently resigned as treasurer of the Old Colony Envelope Company, Westfield.

Bellingham, Wash.—The Pacific Coast Paper Mills, Inc., has work under way on an expansion and improvement program to provide for increased capacity, developing a total output of about 60 carloads of finished stock per day. It is understood that the work will be carried out over a period of months and will cost upward of $400,000, with equipment.

Williamsport, Pa.—The Lycoming Paper Box Company, recently organized with a capital of $50,000, by Robert L. Leinbach, 155 East Fourth street, Williamsport, and associates, is said to be planning the early operation of a new local plant for the production of paper boxes and containers, as well as paper pails and kindred receptacles. Mr. Leinbach is treasurer. Other officers will include V. A. L. Ertel and Robert F. Rich, both of Williamsport.

North Chelmsford, Mass.—Bast Fibres, Inc., is concluding arrangements for the purchase of a portion of the local mill of the United States Worsted Company, now in receivership, consisting of that section of the plant formerly used by the Silesia Mills division, totaling 150,000 square feet of floor space. The purchasing company proposes to use the property for fibre product production and will occupy at an early date.

Portland, Ore.—The F. C. Stettler Manufacturing Company, 300 Oregon street, manufacturer of folding paper boxes, cartons, etc., has awarded a general contract to L. H. Hoffman, Public Service Building, Portland, for the rebuilding of portion of factory recently destroyed by fire with a loss of over $350,000, including equipment. Plans have been filed and work will be placed under way at once. The rebuilding with new machinery is expected to cost close to the amount of the fire loss.

Cleveland, Ohio—The Dobeckmun Company, 1311 West 80th street, manufacturer of cellophane products, mechanical equipment for production, etc., has approved plans for a new plant on a tract of about one acre of land at Monroe Avenue and Fulton Road, S.W., recently purchased. The plant will be one story, 100 x 262 feet, and is reported to cost about $80,000, with machinery. A general contract has been let to the William Dunbar Company, 8201 Cedar street, and superstructure will be placed under way at once. The George S. Rider Company, Marshall Building, Cleveland, is architect and engineer.

New York, N. Y.—The Charles A. Probst Board Company, Inc., recently formed by Charles A. Probst, 381 West Broadway, and associates, with capital of $20,000, is said to be planning operation of a local plant for the manufacture of paperboard specialties, as well as boxes and cartons.

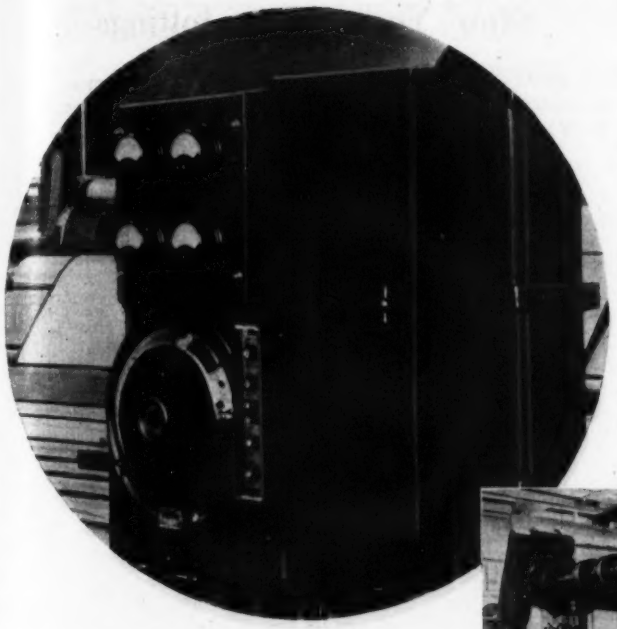
Los Angeles, Cal.—The Pacific Fiber & Cordage Company, 2740 Pacific street, San Pedro, Los Angeles, has plans under way for a new fibre mill in the Wilmington harbor district, consisting of a one-story unit, 60 x 150 feet, reported to cost over $75,000, with machinery. It is expected to begin superstructure at an early date.

Camden, N. J.—The Neidich Process Company, Camden, manufacturer of carbon paper products, etc., an interest of the Underwood Elliott Fisher Company, 342 Madison Avenue, New York, has acquired, through the parent company, the plant and business of the Waters & Waters Division of the Neidich Process business of the Waters & Waters Manufacturing Company, Pierce Building, St. Louis, Mo., carbon papers and kindred products, and will operate as a separate unit under the name of the Waters & Waters Division of the Neidich Process Company. The former owners of the acquired company will continue to be identified with the business, and different branches of the Waters & Waters company will be continued as heretofore. The Neidich company has work nearing completion on an expansion program, consisting of a new multi-story unit to cost close to $100,000, designed for considerable increase in present output.

Albany, N. Y.—The Wheeler Paper Corporation, recently organized by Thomas B. Wheeler, Loudonville, N. Y., and others, with capital of 1000 shares of stock, no par value, is said to be planning the early operation of a local plant for manufacture of paper products of various kinds. Company will also deal in paper stocks. Charles L. A. Whitney, Loudonville, is interested in new company, as is Horace K. T. Sherwood, 549 Providence street, Albany.

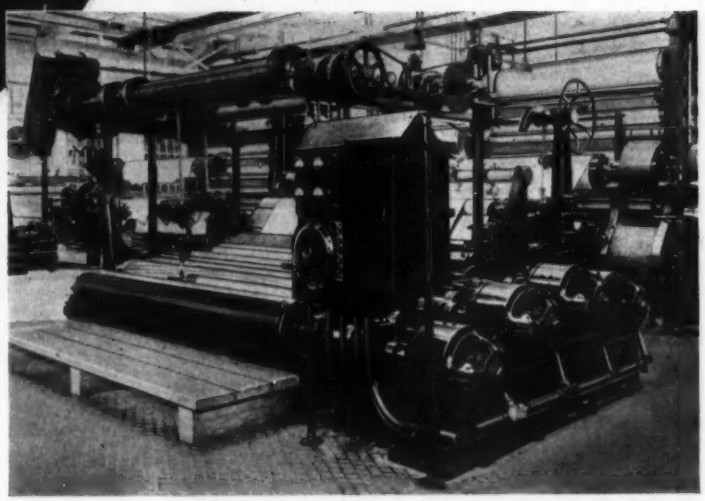
Wilmington, Del—The Natural Products Conversion Corporation, recently organized under Delaware laws with a capital of 1,000,000 shares of stock, no par value, and registered office at that of the Colonial Charter Company, Ford Building, Wilmington, plans the operation of a mill for the production of cellulose and cellulose products, on site to be announced in the near future. A considerable portion of the output will be devoted to the manufacture of transparent moisture-proof packaging materials for food products, etc., under the Hulbert-Small-Adkins patents. This new process is said to provide for a finished material of high quality under reduced costs of production. It is proposed to begin work on the mill at an early date, with cost reported over $1,000,000 including machinery. The company will also license other companies to use the manufacturing patents noted. Sidney A. Witherbe, New York, will be president of the new organization.

Gardiner, Me.—The Hollingsworth & Whitney Company, Gardiner, will proceed with the construction of a new one-story addition to power house at its local mill, reported to cost close to $50,000, with equipment. Improvements will also be carried out in the present station. Considerable increased power supply



One rheostat controls the speed of all drums after they have been regulated to suit the grade of paper.

One-Hand Control and Better Rolls



M & W Four Drum Winder with Electric Drive, in mill of West Virginia Pulp & Paper Co., Williamsburg, Pa.

Modern progress in paper making is well illustrated by the precise, yet extremely simple, control of the M & W Electric Winder Drive.

Each drum is driven by a separate D. C. motor. For a change in paper, slight changes may be necessary in the individual controller settings, to get the right ratio of pull between the "constant" and "variable" drums. This is done when the rolls are turning very slowly under the influence of the main controller. Once the individual controls are set, the entire group is brought to speed and operated as a unit by the main controller.

Speed may be anything from zero to the maximum—and perfectly steady at any speed. Roll hardness is automatically reduced toward the outside of the rolls.

This new trouble-saving electric drive is fully described in the new booklet on M & W Four-Drum Winders. Shall we send you a copy?

Yes, we still build belt-driven Winders — and good ones! But we consider the Electric Drive a long step forward.

THE MOORE & WHITE COMPANY
Established 1885
15th ST. & LEHIGH AVE. PHILADELPHIA, PA.

will be developed for service at the mill. Charles T. Main, Inc., 201 Devonshire street, Boston, Mass., is engineer.

Vancouver, B. C.—The Powell River Company, Ltd., Vancouver, has work in progress on an expansion and improvement program at its news print mill to provide for an increase in production from 500 to 650 tons per day. It is expected to have the work completed so that the mill can be run on the new schedule early in 1931. Other departments of the plant will be extended to provide for the advance, including pulpwood and ground pulp divisions.

East Lockport, N. Y.—Fire, September 13, damaged the local pulp mill, known as the Old Trader mill. An official estimate of loss has not been announced.

Indianapolis, Ind.—Beach & Arthur, Inc., 221 West South street, Indianapolis, manufacturer of paper novelties, including paper napkins, tablecloths, plates, etc., will push erection on its new plant units near Columbia avenue and the Nickel Plate Railroad, and propose to have the buildings ready for occupancy early in December. The work will include a main one-story factory, 200 x 300 feet, and one-story and basement office on adjoining site, 60 x 60 feet, estimated to cost close to $100,000, with equipment. The present plant will be removed to the new location and additional equipment provided for increased capacity. A number of new paper novelty products will be manufactured at the plant. General contract for the plant was recently let to Harry Fitton, 958 North Pennsylvania street, who has also engaged as architect for the work. W. H. Arthur and R. W. Beach head the organization. F. S. Boening has recently joined the company to design certain special machinery for the new plant.

Danville, Ill.—F. E. Butcher and C. C. Tilton, Danville, receivers for the Cornstalk Products Company, with local mill for the manufacture of paper products under a special process, using cornstalks as raw material, have made application to the United States District Court for permission to sell the property of the company at public auction, including mill and machinery.

New Companies, Etc.

Chicago, Ill.—The William Schild Company, 300 West Adams street, has been incorporated with a capital of $10,000 and 200 shares of stock, no par value, to manufacture fancy paper products of various kinds, paper novelties, etc. The incorporators are M. McCarthy, H. Travis and H. Smith.

Wilmington, Del.—Paramount Packages, Inc., has been incorporated with a capital of 22,000 shares of stock, no par value, to manufacture paperboard products, paper boxes, containers, etc. Local registered office of the company is care of the Corporation Service Company, Delaware Trust Building, Wilmington.

Boston, Mass.—The Colonial Paper Company has been organized to deal in paper stocks of various kinds. Harry T. Epstein, president; and Benjamin Gilman, 69 Floyd street, treasurer and representative.

Stockport, N. Y.—The Van De Carr Paper Company, Stockport, has filed notice of company dissolution under state laws.

New York, N. Y.—The Garfield Paper Company, Inc., has been incorporated with a capital of 250 shares of stock, no par value, to manufacture and deal in paper products. The company will take over and succeed to the concern of the same name with headquarters at 320 Broadway, New York. Lyman B. Garfield and Harold L. Walker head the new organization.

Los Angeles, Cal.—The M. R. K. Tablet Company, Inc., has been incorporated with a capital of 5000 shares of stock, no par value, to manufacture writing tablets and kindred products. The incorporators are E. McMann, A. VanCott and William P. Redmond, Story Building, Los Angeles. The last noted will represent the company.

Buffalo, N. Y.—The Wagner Folding Box Corporation, 1605 Broadway, has arranged for an increase in capital from 250 to 1250 shares of stock, of which 250 will be preferred with a value of $25,000, and 1000 shares of common stock, no par value.

New York Trade Jottings

Fred C. Clark, vice president of Skinner & Sherman, Inc., chemists and engineers, of Boston, Mass., has been visiting New York in the interest of his organization.

* * *

Celotex Company voting trust certificates for 225,194 shares of common stock without par value, are to be admitted to trading on the New York Stock Exchange on notice of issuance.

* * *

H. L. Joachim, mill manager of the Philadelphia Division of the Container Corporation of America, was a New York visitor last week.

* * *

Edward Magnuson, president of the Magnuson Products Corporation, Brooklyn, N. Y., arrived in New York recently after a three months visit to Sweden. Mr. Magnuson declared that general conditions in Sweden appeared to be good.

* * *

Joseph Parker & Son Company, makers of Treasury, Commercial, Capitol, and Lithotone blotting papers, have removed their New York offices to Room 608, 401 Broadway, New York. Telephone, Canal 0498.

* * *

Harry R. Black, hydro-electric engineer, who arrived in New York recently from New Zealand, plans to take up his residence in the United States, with a view of extending his experience in his particular field.

* * *

National Products Conversion Corporation has been incorporated under Delaware laws for the purpose of manufacturing cellulose and cellulose products under the Hulbert-Small-Adkins patents. Sidney A. Witherbee, of New York, will be the president. The company has 1,000,000 shares of all common stock, no par value, giving it a nominal value of $20,000,000.

* * *

The regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry was held last Monday at the Fraternities Club. Paul S. Hanway, manager and treasurer of the American Waxed Paper Association, gave his impression of the Trade Practice Conference held at the Congress of Industries, which took place at Niagara Falls, N. Y., recently. His interesting and instructive address was greatly appreciated by those present.

* * *

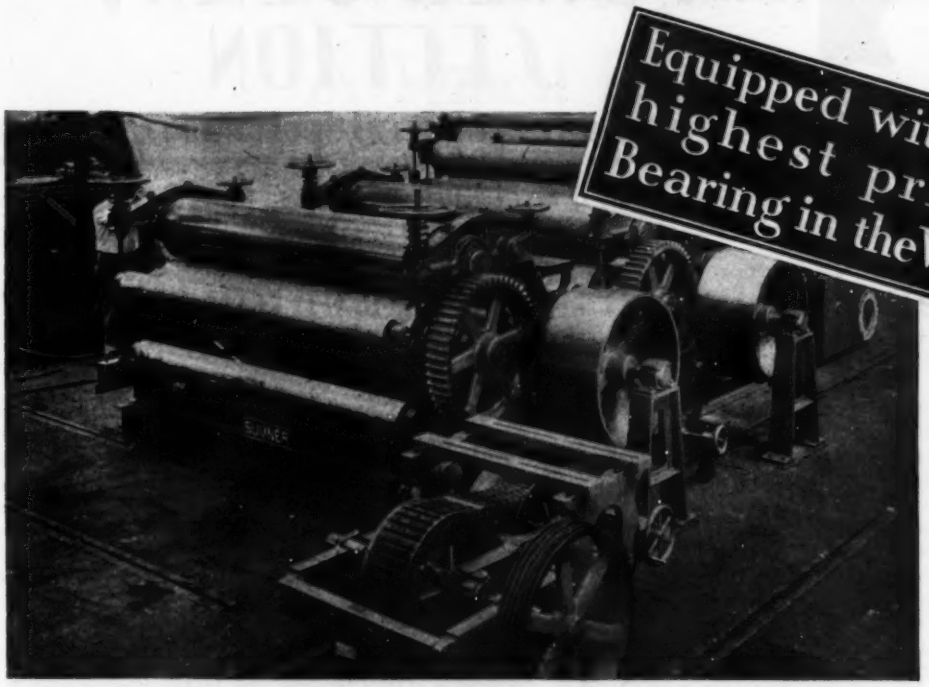
Newell J. Lewis, temporary chairman of the newly formed Waste Paper Institute, announces that the next meeting of the organization will be held at the Astor Hotel, New York, on Friday, October 10. This meeting will be a special conference of the waste paper industry in the East, at which time it is expected that the organization of the Institute will be completed with the organization of an Eastern Division. The representative dealers and packers, east of Pittsburgh, have been invited to attend the conference. The leaders of the industry in the Middle West have made preparations to attend the New York meeting. Mr. Lewis reports that the entire Executive Committee and the officers, elected at the Chicago meeting, on September 10, have been engaged in an intensive campaign to enlarge the membership of the Institute and that some interesting reports will be made at the New York meeting.

Fir-Tex To Open Permanent Display Room

PORTLAND, Ore., September 27, 1930.—Fir-Tex Insulating Board Company, St. Helens, has taken space at 235 Broadway, Portland, for a permanent display room for their products and will spend several thousand dollars in remodeling it for their purpose, according to announcement of Forrest P. Barrett of the Fir-Tex Company. The lease which is for three years, covers space in the Paramount theater building, one of the best business locations in the city.

ANOTHER MANUFACTURER IN THE PAPER INDUSTRY THAT USES SKF BEARINGS

SUMNER IRON WORKS



50 SKF BEARINGS AID SUMNER'S MACHINE CUT PAPER COSTS

FIFTY SKF Ball and Roller Bearings are used in every important position on the Sumner Iron Works, 96" Double Press Wet Machine. It is Sumner's way of guarding every step in the manufacture of their equipment to the end of insuring perfect performance. Years of experience with SKF have conclusively shown to Sumner that out on the job SKF Bearings certainly prove the wisdom of buying bearings toward a definite goal of service. It is on that basis that "the highest priced bearings in the world" are the cheapest by actual test.

The manufacture of paper calls for continuous service often under far from ideal conditions. Yet, SKF Bearings have demonstrated their consistent reliability in all types of paper mill applications. SKF Bearings have the precision to keep all interrelated parts working at their highest efficiency. They have the ruggedness and long life which mean economical operation. They show no wear, need no periodic adjustments and are fully protected from moisture. Where paper must be produced at the lowest cost per unit, SKF are a definite investment toward that end.

SKF INDUSTRIES, INC., 40 East 34th Street, New York, N. Y. 2598

EQUIPPED WITH THE HIGHEST PRICED BEARING IN THE WORLD

Means just this

SKF

Ball and Roller Bearings

That the manufacturers whose product is illustrated above preferred to pay more for their bearings and less for servicing or replacing them. They preferred to pay a higher price in the beginning than many times this higher price in the end. And, finally, they preferred to economize by using SKF bearings because they are made to do their job, not to fit a price list.

POWER PLANT SECTION

REDUCING POWER COSTS THROUGH UNIT TREATMENT

Conducted by Reginald Trautschold Consulting Engineer

Vacillations In Flue Heat Reclamation Practices [1]

Renewed Interests in Fuel Economizers

The effectiveness with which steam is generated in a modern, well operated boiler plant, assuming the efficient combustion of coal, fired either on stokers or in pulverized form, is indicated by the temperature at which the gases of combustion finally escape to the stack. Most of the work is done in and by the boiler proper and its superheater, of course, but a very respectable share is performed by the equipment provided for salvaging heat from the hot flue gases rejected by the boiler, by fuel economizers, so-termed, and air preheaters.

If fuel economizers are used, the water heated by the exhaust gases may be employed for a boiler feed supply and the salvaged heat so enter the boiler. If air preheaters are employed, the heated air may serve as a combustion air supply to stimulate ignition, increase furnace temperature and so accelerate the rate and efficiency of heat transfer to the boiler contents. The salvaged heat may be utilized for other useful purposes, it is true, the hot water from economizers for process operations, such as heating caustic soda liquor, etc., and the hot air from the preheaters for thermal processes distinct from that of steam generation, but so far as the boiler plant is concerned, the reclaimed heat is placed in the boiler which had previously rejected it, in one case, and, in the other, it serves to limit the rejection of heat by the boiler by elevating the rate of heat absorption of the steam generator. In other words, the salvage is direct in one case and indirect in the other.

Effectiveness of Economizers and Preheaters

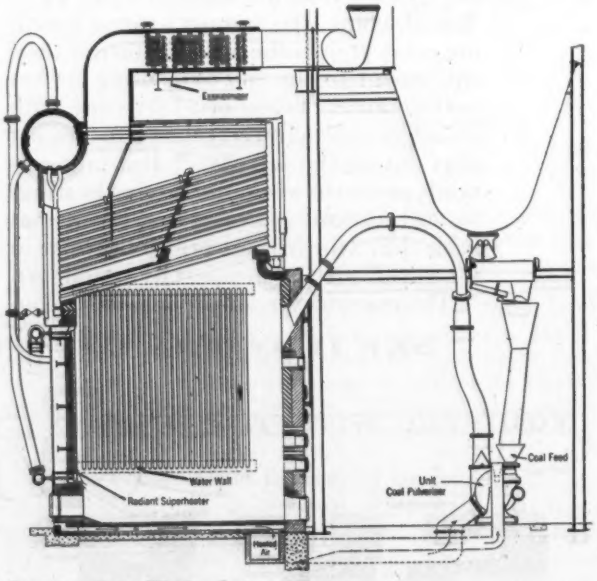
So far as the respective thermal efficiencies of the two classes of heat reclaimers are concerned, in modern boiler practices they have been found to be very much on a par. The fact that nowadays the feed water supply usually enters the economizer at a temperature of upward of 200 degrees, under some circumstances very considerably above, the temperature differential between the hot gases and the feed supply limits the reclamation of heat, *i.e.*, the heat absorption by the feed water, to about 60 per cent. of the usable heat in the gases, or not very much more. Effecting such salvage results, as a rule, in an elevation in the feed water temperature of about a hundred degrees, which is reflected in an increase in boiler efficiency of around 10 per cent.

In five of the steam power plants erected within the past year or two, plants which are well representative of advance practice and are highly efficient, the average elevation in feed water temperature effected in the economizers is 97 degrees, with a minimum of about 70 and a maximum of close to 160 degrees. The minimum and maximum, incidentally, were realized in the same plant, under sub- and abnormal conditions of service.

In the case of air preheaters, while the temperature differential between the air supply and the hot gases is considerably higher than between the water and the flue gases in modern economizer service, a definite limitation is also placed upon the attainable air temperature, since the air cannot be heated much above the temperature at which the gases leave the preheater. Where it is possible to elevate the temperature of the feed water supply 100 degrees, and even more, the attainable elevation in temperature of the air in a preheater is usually a matter of between 225 and 250 degrees, rarely much more. The effect of elevating the temperature of the combustion air supply by such an amount would be, under favorable conditions, to raise the efficiency of the boiler plant in the neighborhood of 7 per cent.

Using Both Fuel Economizers and Air Preheaters

Many of the steam plants erected during the past decade make use of both forms of heat reclaimers, economizers and preheaters, in the belief that the temperature reduction in the exhaust gases can be more economically effected in an economizer only in the early stages of such heat reclamation and that it is cheaper to complete the heat salvage with an air preheater. Two critical temperatures are held to exist in the temperature reduction gradient



Courtesy: Foster-Wheeler Corp.

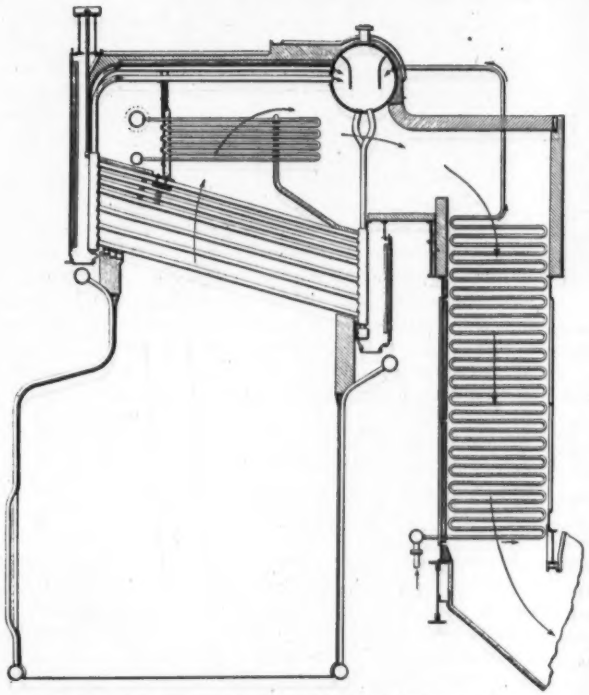
FIG. 1

Diagram of steam generating equipment installed in the boiler room of Crocker, Burbank & Co., Fitchburg, Mass.

[1] For other discussions on flue heat reclamation, see Paper Trade Jour., Jan. 23 and Mar. 6, 1930.

The Two-Stage Boiler

A Typical Product of Babcock & Wilcox Research



The Babcock & Wilcox Two-Stage Boiler—Patented

In The Two-Stage Boiler, part of the water is evaporated in the forced flow stage and evaporation of the remaining water is completed in a natural circulation stage, thus combining in one unit the advantages of natural circulation in high gas temperature regions with those of the forced flow series boiler where temperatures are low. The result is a unit which is compact, efficient and which can be built for a lower investment in boiler and in building, especially where steam pressures are high.

The Two-Stage Boiler is a typical Babcock & Wilcox product, typical because it has been thoroughly proven by test and service and it is at the same time in keeping with power plant requirements of today —and tomorrow.

The natural circulation stage is a Babcock & Wilcox boiler with a background of over sixty years of successful operation. The forced flow steaming stage is the result of more than fourteen years of research on high pressure boilers.

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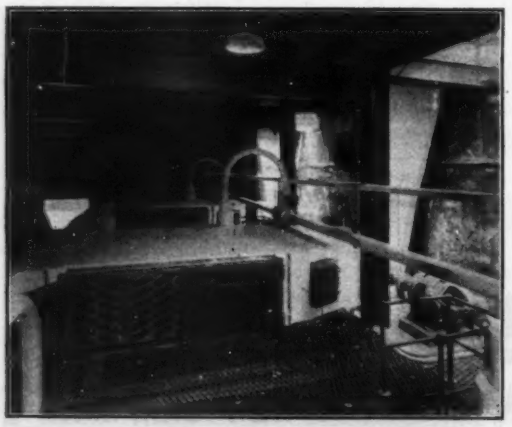
6-37

of the flue gases, that at which the cost of economizer surface is on a par with that of additional boiler heating surface, when it becomes more economical to use an economizer than a boiler with greater heat absorbing surface; and that at which the cost of air preheater surface is on a par with additional economizer surface, when the preheater becomes the more economical unit. It is claimed that for any given set of operating conditions, there is a gas temperature at which each class of equipment should be used, in order to attain the desired efficiency of steam generation with equipment of least cost.

In one new boiler plant where steam is generated at a working pressure of 425 pounds per square inch, charged with 270 degrees of superheat, the gases after leaving the boiler pass through an economizer, giving up 171 degrees of heat, and then pass through a sectional type air heater, where their temperature is reduced 135 degrees more. From the economizer, the feed water leaves at a temperature of 281 degrees, its temperature having been raised about 70 degrees in its passage through the economizer, or sufficient to elevate the efficiency of the steam generator approximately 6 per cent. The preheating of the combustion air, a temperature of 294 degrees being attained in the heater, elevates the efficiency of the boiler by just about the same amount, the total benefit of the complete heat salvage cycle being responsible for raising the efficiency of the plant about 12 per cent. This is an excellent showing, of course, and, while doubtless the use of both varieties of heat reclaimers proves eminently satisfactory in the particular plant, the possibilities afforded of using only one or the other of the salvage units, of suitable capacity, is well worthy of consideration.

The boilers in this plant happen to be stoker fired, so the temperature of the preheated combustion air supply attained with the combination system of flue heat reclamation, very close to 300 degrees, is just about as high as it is safe to go. Also, there is the further and even more definite limitation placed upon use of air preheaters alone for effecting the complete reclamation of flue heat by the fact that the temperature differential between the hot gases leaving the boiler at 590 degrees and the air supply entering the preheater at 80 degrees is insufficient to elevate the temperature of the air much above 300 degrees, if at all. The addition of preheater surface, or the use of a larger heater, consequently, could only supply a larger volume hot air than the supplementary heater used in combination with the economizer, at little or no higher temperature. So far as the steam generator is concerned, this would be no advantage and without the economizer the increase in boiler efficiency secured by heating the boiler feed water would be lost. The plant efficiency could not be increased much over 6 per cent by air heater reclamation of flue heat alone, no matter what the capacity of the heater employed.



Courtesy: Foster-Wheeler Corp.

FIG. 2

Fuel economizer installed on its side to conserve head room at the steam generating station of Crocker, Burbank & Co.

The other alternative, a straight economizer installation, of employing greater fuel economizer capacity, without an air heater, to elevate the temperature of the feed water still further, presents a very different situation. In several of the ultra-modern plants developing steam at high efficiency with the assistance of fuel economizers alone, the flue heat reclamation is being carried to such point that the temperature of the exhaust gases is brought down to under 260 degrees, as against 419 degrees by the economizer at the plant in question, where both types of heat reclaimers are employed. If this much greater reduction in the temperature of the flue gases were effected by an economizer in the plant under discussion, which would be entirely feasible by enlarging the heating surface of the economizer sufficiently, the temperature of the feed water could be elevated 135 degrees, instead of only about 70, and the increase in boiler efficiency attributable to the heating of the feed water raised from 6 up to around 12 per cent. In other words, the straight economizer installation which could be made would be just about as efficient, in respect to the utilization of the salvaged flue heat, as the combination economizer-preheater installation actually made, while a straight air preheater installation would entail a very substantial sacrifice in the efficiency of steam generation.

Present Trends in Flue Heat Reclamation

As to which of these systems of heat reclamation is the best fitted for this particular plant depends more upon local conditions than simply upon the difference in cost between the straight economizer application and the combination economizer-preheater system of heat salvage. There are probably excellent reasons why the more complicated system installed was chosen, aside from that of first cost, and the attention given the question, as well as to the preceding exposition of the relative inherent capacities of the two simpler systems, is instigated simply to clarify to some extent the reasons underlying the present trends in methods of flue heat reclamation, as exemplified in a good many of the more advanced plants built within the past year or two. This, because a movement is certainly under way which appears to differ radically from what was held to be approved practice only a few years ago.

An investigation into methods of flue heat reclamation in a considerable number of so-termed high pressure steam plants serving the mills of the paper making industry, planned for the most part several years back, the findings of which were published in these columns January 23 of this year, showed that the fuel economizers were outnumbered, in these particular plants, by the air heaters nearly three to two and that in these same plants there were nearly three times as many establishments employing air preheaters for flue heat reclamation as were using fuel economizers alone. Also, that combination applications, using both economizers and preheaters, were almost twice as numerous, among the same plants, as applications of economizers alone. This seemed quite significant, although simply a report of findings rather than an indication of the existing trends, and commenting upon the situation a few months later, a prominent manufacturer of both fuel economizers and air preheaters stated that such movement had been particularly noticeable during the first half of the past decade, when the trend was so decidedly towards high boilers with air heaters alone for effecting heat salvage that, based upon the experience of his concern, the very existence of economizers in any form seemed jeopardized. The same authority expressed the opinion, however, that the movement at that time, February, 1930, appeared to be in the opposite direction and that economizers of considerably larger heating surface were being supplied to bring the feed water to a high temperature for use in comparatively small boilers in which the actual work of evaporation, and not much more, could be consummated.

The more general discussion concerning the factors to be considered in making a selection between fuel economizers and air preheaters and published March 6, 1930, in which were voiced the opinions of several authorities on the reclamation of flue heat in boiler plants, rather paved the way for the statistics which are to

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Modern manufacturing, constant supervision, and aer-float control in refining have combined to produce a clay exceptionally free from grit and of unusual uniformity.
The brilliant white color and inherent softness of Paragon together with economical and efficient production methods have brought this product forth as a new standard among paper clays.
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follow. The opinion was expressed that the renewed interest in fuel economizers for flue heat reclamation services was well justified.

It should not be exactly surprising, therefore, to find that the trend toward the use of larger economizers, as was claimed to exist by manufacturers of both economizers and preheaters, has now become distinctly apparent. Among an even dozen of the more modern boiler plants erected quite recently, all with ultra-modern equipment, there are twelve installations of fuel economizers, every plant employing such type of flue heat reclaimer, and only four making use of air preheaters as well. Not one depends upon the salvaging of heat by air preheaters alone.

These plants do not all serve paper mills, it is quite true, the large majority being electric public utility stations, the one class of steam power plant requiring the same economy in steam generation and dependability of equipment as the active paper mill. The need of an unfailing supply of quality steam is the one chief essential of the two classes of industry, making the boiler plants of the central stations and the steam stations of the mills of the paper making industry fairly and properly comparable. Furthermore, it is the stations of the great public utilities which are reputed, at least, to lead the way customarily in progress in steam generation. Be this as it may, it certainly behooves the pulp and paper mills to keep well informed regarding all definite advances made in the conduct and equipment of central station power plants.

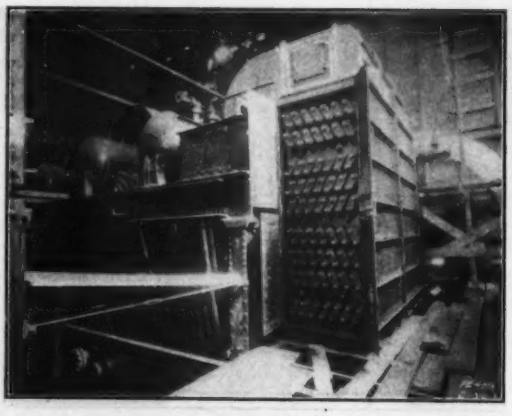
A particularly interesting sidelight on these twelve new boiler plants is that half of them are fired on pulverized coal and the balance handle their fuel on stokers. Among the stoker fired batteries there is an even division in respect to the number depending upon fuel economizers solely for flue heat salvage and the number making us of both fuel economizers and air preheaters for such reclamation. In the case of the plants fired on pulverized coal, the percentage employing both forms of heat reclaimers is only 16⅔ per cent. The boiler plants serving the paper making industry which are fired by automatic stokers are also divided fifty-fifty in respect to using economizers alone and economizers with supplementary air preheaters. In the other group fired on pulverized coal, there is not a single boiler station serving a paper mill employing both systems of flue heat reclamation. Of course, the lists are quite limited and with more plants to consider there would doubtless be some change in the proportions.

In spite of this, the percentages as given are clearly indications of new trends in flue heat reclamation which are altogether too pronounced to be ignored. They point out, in the first place, that stoker firing in the newest plants is at least keeping pace with the combustion of coal in pulverized form. An even more noteworthy trend is that there appears to be far less dependence upon air preheaters for flue heat reclamation on the part of plants burning powdered coal, which have a very definite need for a supply of heated air, than on the part of stoker fired plants, for which a supply of heated air is more in the nature of a refinement than of a necessity. Of course, several explanations might be advanced for this, but rather to the disparagement of the air preheater's suitability for supplying the needs of a modern system of pulverized coal burning.

Heat Reclamation Practices in New Paper Mill Plants

At the new central steam plant of Crocker, Burbank & Company, Fitchburg, Mass., one of the newer pulverized coal burning plants serving the paper making industry, commodious fuel economizers are employed, but no air preheaters. The hot air supply for the pulverized fuel system being a by-product of the air cooled refractory furnace floor. The boiler units, three 500-horsepower steam generators, operate at a normal rating of 300 per cent, furnishing steam to the turbines at 385 pounds pressure and 175 degrees superheat. Regular daily operation under these conditions has shown an overall efficiency of better than 84 per cent.

This high ranking of the steam generators is attributable in large part to the effective heat reclamation by the 2,500 square feet of economizer surface with which each boiler is provided. These



Courtesy: Foster-Wheeler Corp.

FIG. 3

Fuel economizer installed in normal position at a Kimberly-Clark Corp. power plant.

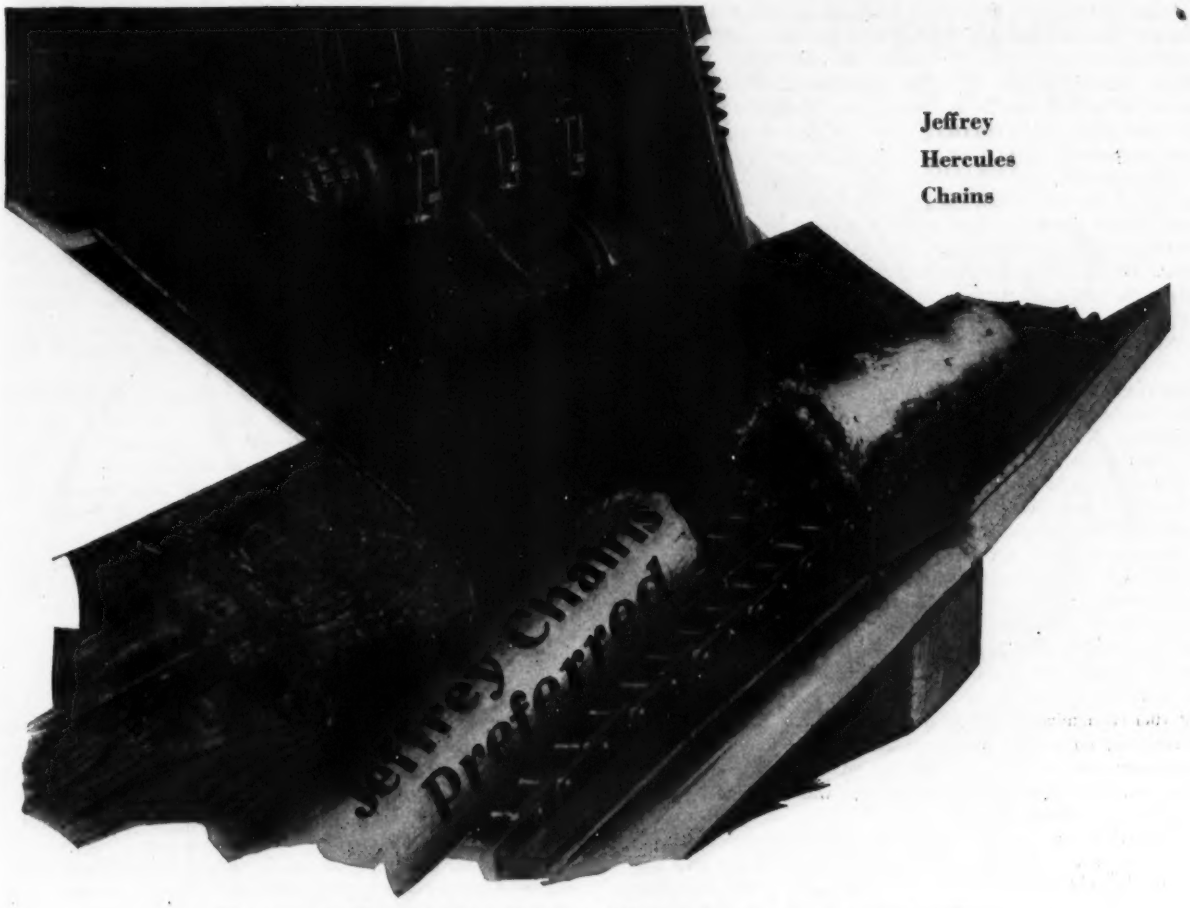
economizers are of the high pressure, counterflow type and absorb some 10 per cent of the heat utilized in the system, a result made possible by the extended surface construction of the economizer elements and the complete counter-current flow of gas and water arrangement. The economizer elements are divided into banks for the accommodation of soot blower elements between the banks. To save height in the boiler room, the economizers have been installed on their sides, which, while of no particular benefit so far as heat reclamation is concerned, is of interest as evidence of the marked adaptability of the units in meeting local conditions, or requirements.

At the new boiler-room of the Rhinelander Paper Company at Rhinelander, Wis., one of the more recent of the stoker fired plants, the two 834-horsepower boilers, generating steam at 400 pounds with 100 degrees of superheat, are provided with no air heaters, but with 5,184 square feet of economizer surface per unit. This is at the rate of well over 6 square feet of economizer surface per rated boiler horsepower and well exemplifies the use of large economizers for securing high feed water temperatures.

A comparable example of stoker fired boilers employing both economizers and air heaters, installed some three years earlier, is at the Thunder Bay Paper Company, Port Arthur, Ont. The individual boilers in this case are of a little larger capacity, but are operated at a somewhat lower pressure, though the steam is more highly superheated. The economizer surface provided each boiler is less than half that which the boilers at the Rhinelander plant are equipped, only 2,297 square feet, but the air heater surface per boiler amounts to 8,400 square feet. Conditions are not exactly the same in both instances, of course, but a comparison of the equipment furnished for heat reclamation service in each case is nevertheless of interest.

The remodeled plant of the St. Regis Paper Company, at Defereit, N. Y., is another exemplification of a powdered fuel station operating at high efficiency with fuel economizers employed solely in flue heat reclamation. Steam is generated at quite a moderate pressure, 150 pounds per square inch, with 110 degrees of superheat, and, while the economizer raises the temperature of the feed water only some 58 degrees, the efficiency of the plant is increased 5.6 per cent by such thermal salvage. That is, the efficiency of the boiler and furnace alone is 80.1 per cent and of the plant with economizers, 84.6 per cent.

This record is even bettered at the new power plant of the Spruce Falls Pulp & Paper Company in northern Ontario, where the economizers alone raise the efficiency of the boiler and the pulverized coal furnace more than 11 per cent, without the economizers the plant efficiency being 76.2 and with the economizers 84.7 per cent. The boilers, customarily operated at 333 per cent of rating, generate steam at 250 pounds, with 150 degrees of super-



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heat, and the economizers contain 6,048 square feet of heating surface per heat salvaging unit for each of the four 1,035 square foot steam generators, nearly 6 square feet per boiler horsepower rating. The feed water enters the economizers at 180 degrees and leaves the heat reclaimers at a temperature of 292 degrees, a rise in temperature of 112 degrees. These last two mentioned installations, incidentally, were made three or four years ago.

Still another of the installations of fuel economizers as the sole equipment provided for flue heat reclamation which shows that the trend toward the use of high capacity economizers is really not as recent as the preponderance of air heater and combination economizer-air heater applications in pulp and paper mill power plants during the earlier twenties would indicate, is in one of the Kimberly-Clark Corporation's power plants. The particular boilers served are rated at 823 horsepower each and are operated at between 250 and 350 per cent of rating. Each of the economizers heats 75,800 pounds of water per hour from 180 to 285 degrees, a temperature rise of 105 degrees, and in so doing the flue gas temperature is reduced from 670 degrees to 337. This very respectable heat reclamation raises the combined efficiency of the plant to 85.9 per cent at 300 per cent of boiler rating.

Additional examples could easily be cited of flue heat reclaiming equipment installations in which fuel economizers have been much to the fore, either in effecting all the heat salvage or that of the initial stages in combination heat recovery systems, made before and since the very marked popularity of air preheaters which accompanied the advent of the modern high pressure boiler plant, but those which have been referred to should suffice to indicate trends, at least, in present day heat reclamation practices. It is not intended, moreover, to indicate or to convey the impression that fuel economizers have been or are replacing air preheaters in general, any more than the presentation of the findings of an investigation into methods of heat reclamation in high pressure steam plants at the beginning of the year was intended as a swan song for the fuel economizer.

A situation was then portrayed, the opinions of various authorities on flue heat reclamation subsequently advanced and now a decidedly different trend is shown to be apparent. With such vacillations in flue heat reclamation practices, it certainly behooves the pulp and paper mill interests to keep well posted on developments and trends in the reclamation of heat from the gases of combustion and in the utilizations made of the thermal salvage effected. So far as the respective merits of fuel economizers and air preheaters in such essential reclamation are concerned, about the only conclusion which can be drawn with reasonable assurance is that the heat salvage capacity of the former is inherently the greater, considering the limitations imposed in the temperature gradients as yet attainable in the usable path of the products of combustion, whether the fuel is burned on stokers or fired in pulverized form.

Fargo Paper Co. Completes Building

FARGO, N. D., September 20, 1930—Completion of the Fargo Paper company's new building at 8 Eighth street N, erected this year at a cost of $45,000, will provide space for a considerable expansion of the business, it is announced by R. E. Cole, president and general manager.

The company has moved into its new quarters which provide 20,000 feet of floor space. The building, located between the Park, Grant and Morris building and the International Harvester building, is 50 by 135 feet in size, two stories and basement.

Offices and display rooms occupy the front of the ground floor, with about 1,500 feet of space in the northeast section of this floor. To the rear of these offices there is a large display room which will be used for an exhibit of the complete regular line of the company.

This line consists of paper goods, including wrapping paper, building, roofing and toilet paper, bags, stationery, paper pails, twines, wooden dishes, sweeping compound, paper boxes and containers, egg cases, ice cream cones, oil cloth, fireworks and cans.

Far West News Print Prices Cut

Powell River Company, Ltd., news print manufacturer of Vancouver, B. C., has announced its entrance into the Pacific Coast States with a reduced price for the commodity of $58 a ton. Blake, Moffitt & Towne will act as the company's representatives, states the Pacific Coast Edition of the *Wall Street Journal*.

The Powell River Company, whose mills at present have daily production capacity of 500 tons of news print, will enlarge its facilities through plant additions to be completed January 1, to a daily capacity of 650 tons of news print.

The company, manufacturer of news print for twenty years, has an invested capital of $30,000,000 in its business. Its competition in the Pacific Coast field consists of Crown Zellerbach Corporation and its subsidiary, Pacific Mills, Ltd., owned by Crown Willamette Paper Company, and Hawley Pulp and Paper Company.

The previous contract price level of news print sold largely direct by Coast manufacturers was $63.50 a ton, but it has been generally known that concessions of reductions below this figure have been made. Swedish news print, imported for the Pacific Coast trade, has sold for less than the $58 price announced by Powell River Company.

The price announced by Powell River is on contract basis, f.o.b. mills, less insurance and freight allowance to Pacific Coast ports. Long-term contracts contain a guarantee of a maximum of $60 a ton until the end of 1933.

Confer on Russian Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., September 29, 1930.—Following a conference this week with officials of the Racquette River Paper Company the subject of foreign importations of pulpwood was discussed freely by M. S. Nakodzub, vice president of the Amtorg Trading Company, who declared that the recent shipments were not handled by convict labor. Mr. Nakodzub has spent a number of years in this country and has been in active charge of one of the largest organizations of the Russian government here both for purchasing and selling. He stated that within the past few years the Soviet government had been shipping to this country about 400,000 cords of pulpwood annually and incidentally the Racquette River Paper Company was one of its best customers. A cargo of the foreign product is now being shipped over the St. Lawrence River and is expected at the local plant within a few days.

Mr. Nakodzub said that his mission to this section was in the interest of pulpwood shipments and that inasmuch as the Russian interests have experienced a fine business from paper mills he hopes that it will continue. It is his belief that the foreign importations of pulpwood are grown on a different kind of land than in this country and consequently are of a finer quality. Already, he said, Russia is feeling the effects of timber cutting and it is becoming increasingly difficult to get the pulpwood to the nearest sources of transportation.

Big Niagara-Hudson Power Development Projected

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., September 20, 1930—It is reported on good authority that the planned $9,000,000 power development project of the Niagara-Hudson Power Company will be started early this fall. The company recently took over the extensive power holdings of the Union Bag and Paper Company in this village with a view to development at an early date and it is understood that the dam near No. 5 mill will be demolished in making way for a larger one at the same point. It is also assumed that a canal will be made on the Fenimore side of the Hudson River and that a large new power plant will be built nearby. Plans call for making the power house the second largest producer of electricity in the state as the drop in the river at this point is considered the highest in the state, with the exception of Niagara Falls.

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THE NEWS PRINT SITUATION

The resignation of Col. John H. Price as chairman of the Board of Governors of the Newsprint Institute of Canada, announced last week and more fully reported elsewhere in this issue of the PAPER TRADE JOURNAL, is to be regretted. The influences which lead to Col. Price's resignation are depressing. These influences have been referred to from time to time in the PAPER TRADE JOURNAL, but their existence has been denied. The developments of the past few weeks have, however, confirmed their existence. Col. Price in his letter of resignation says:

"I became chairman of the Board of Governors of the Newsprint Institute of Canada last February because I was persuaded that I might assist the success of the Institute and thus serve the best interests of the industry which, under the trying circumstances, I was willing to place above the direct advantages of the company I represent.

"I was aware at that time of the suspicion and distrust which prevailed within the Institute, and I stated in very specific form that I would undertake to act only on a basis of full cooperation and observance of agreements by all members.

"In the intervening months I have spared no efforts to promote to the best of my ability the interests of all companies belonging to the Institute, both in Canada and with regard to relations between these companies and American customers. I have, however, become convinced during this time that the expressed purposes of the Institute and my efforts to accomplish them have been and are defeated by the unwillingness of members to conform to either the spirit or the terms of their membership agreement.

"In the case of one important Institute company this unwillingness has recently taken the form of aggressive action which is in opposition to the interests of other member companies and which, in my opinion, constitutes a direct and flagrant violation of the Institute agreement.

"Under these circumstances, it has become fully apparent to me that, as chairman of the Institute, I have been placed in the position of being an unwilling party to breaches of faith and in the position of acting to the disadvantage of shareholders whom it is my duty to protect.

"I decline to tolerate such a position further, and, in consequence, I beg herewith to submit my resignation as chairman of the Institute. I must also advise you that, in view of these circumstances and the recent developments, Price Brothers & Co., Ltd., now intends to adopt immediately whatever independence of policy and action it may be compelled to follow in order to protect its position and the interests of its shareholders against the aggression already referred to.

"I sincerely regret the conditions within the Institute which make necessary this action on my part, but I must make clear that it is effective today and that it is not subject to reconsideration."

Speculation as to what is likely to happen now is naturally rife and some extremely pessimistic views are expressed. The PAPER TRADE JOURNAL, however, believes that in the end intelligence will prevail and that the great industry the news print manufacturers have built in Canada during the past twenty years, since 1911 when news print was placed on the free list by the United States, will be saved from most of the depressing developments that are predicted.

It seems likely, however, as a result of the present situation, that the price of news print will drift to lower levels and that if this drift continues sufficiently, the higher cost mills will have a severe struggle to exist. But in the event of the price of news print being stabilized at a lower level, newspaper prices may again be fixed at one cent, as they commonly were before the war. This may reasonably be expected to cause a decided expansion in the demand for news print and may ultimately solve the situation by furnishing an adequate demand for the present capacities of the mills without causing them to indulge in the wild scramble for customers that has been most largely responsible for the present unpleasant situation.

LARGEST HYDRO-ELECTRIC PLANT

President Hoover turned a golden key in the White House at 10:30 on Tuesday morning of this week and instantly the largest hydro-electric plant completed in the United States this year began operation.

The energy supplied by the President's index finger traveled over a special 700-mile circuit to the upper Connecticut River midway between St. Johnsbury, Vermont, and Littleton, New Hampshire, where the mammoth Fifteen Mile Falls Lower Development has just been completed by the New England Power Association, a subsidiary of the International Paper and Power Company.

President Hoover's participation was the most important feature of the dedicatory exercises of this largest unit of New England's largest electric utility system. As soon as the President started the waterwheels, and the electric generators began to turn over, President Frank D. Comerford of New England Power Association issued the orders necessary to send the power from the station down through the transmission lines of the system.

Public officials from the four states and the two hundred and fifty municipalities in which units of New England Power As-

sociation operate, gathered at Fifteen Mile Falls for the dedication ceremonies. Invitations were extended to Governors Frank G. Allen of Massachusetts, Charles W. Tobey of New Hampshire, John E. Weeks of Vermont and Norman Case of Rhode Island, to the mayors and selectmen of many cities and towns, to the members of the public utilities commissions of the several states, to public utility executives and engineers from all parts of the country, and to numerous manufacturers, investment bankers, newspaper editors and others who have followed the Fifteen Mile Falls project from its inception.

The fifteen Mile Falls development was one of the biggest construction jobs in New England's history. The main dam rises 175 feet above the bed of the river. On the Vermont side is the spillway, 850 feet long and varying in height from twenty to eighty-five feet. This leads to the main part of the dam, on top of which is one of the biggest transformer banks in that section of the country and the lofty towers from which wires pass to the outdoor switching station on the New Hampshire hillside.

At this station the electrical energy which will be generated at 13,800 volts will be stepped up to 66,000 volts for local distribution and to 220,000 volts for transmission over the 126-mile double-circuit steel tower line which runs to another new switching station at Tewksbury, Massachusetts. Beyond the intake section is an earth dam, anchored with the largest concrete retaining wall ever built in the United States. This wall extends 500 feet upstream and 395 feet downstream from the center of the dam, is 175 feet high at its mid-section, and contains 90,000 cubic yards of concrete.

The powerhouse is built in the river directly below the dam. The main building is 236 feet long and 99 feet wide. The generator rooms contains four vertical type generators directly connected to the waterwheels. Each unit is capable of developing 54,000 horsepower.

Milwaukee Transparent Wrapping Center

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 29, 1930.—Milwaukee is looking forward to becoming one of the leading centers of the midwest for the production of transparent wrappings. Since the visible wrappers and containers came into vogue, the plants located there have been stepping up their production constantly. The entry of the Transello Paper Company into the field with a production of 5,000 pounds daily will add to the claims of Milwaukee as a center for this specialty. The largest producer there at present is the Milprint Products Corporation, whose orders are coming in constantly increasing amounts from all over the country. Milwaukee produces cigars valued at $3,000,000 annually and is wrapping most of these at the present time.

To Establish Community House at Ft. Edward

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., September 29, 1930.—A movement is under way by the Thomas F. Adriance Mutual Benefit Association of the local International Paper Mill whereby it plans to take over valuable property on Eddy street for use as a community house. It is said that negotiations are now virtually completed for taking over the building which adjoins the paper mill in this village. The property is ideally located for such a purpose and its construction would permit of large lodge rooms and a banquet hall while the upper section could be used for the staging of social entertainments.

Canadian Paper Exports Decreased

Pulp and paper exports from Canada in August were valued at $12,700,337, according to a report issued by the Canadian Pulp and Paper Association. This was a drop of $2,208,000 from the previous month's total and was $4,700,000 below the total for August 1929.

Wood pulp exports for the month were valued at $2,539,680 and exports of paper at $10,160,657 as against $2,988,267 and $11,920,019 respectively in the month of July.

For the various grades of pulp and paper details are as follows:

	August, 1930		August, 1928	
PULP:	Tons	$	Tons	$
Mechanical	18,826	555,796	19,606	557,646
Sulphite Bld.	16,058	1,141,310	25,989	1,904,507
Sulphite Unbld.	9,411	478,847	19,791	966,515
Sulphate	4,927	284,086	13,265	767,921
Screenings	1,078	21,126	4,560	75,458
All Other	763	58,515	.....	.....
	51,063	2,539,680	83,211	4,272,047
PAPER:				
News print	170,107	9,822,755	217,638	12,659,566
Wrapping	939	92,833	1,474	161,717
Book (cwts)	2,243	23,097	6,695	54,818
Writing (cwts)	23	346	692	5,881
All Other	....	221,606	....	295,198
		10,160,657		13,177,180

For the first eight months of the year the exports of pulp and paper were valued at $119,117,190. In the corresponding months of 1929 the value was $130,033,538 so that there has been a decline this year of $10,916,348 or a little over 8 per cent.

Wood-pulp exports for the eight months amounted to $26,-851,657 and exports of paper to $92,265,533 as compared with $28,869,844 and $101,163,694 respectively in the corresponding months of 1929.

Details for the various grades are given below:

	Eight Months, 1930		Eight Months, 1930	
PULP:	Tons	$	Tons	$
Mechanical	124,208	3,611,302	128,438	3,525,118
Sulphite Bld.	170,524	12,554,270	173,781	13,183,095
Sulphite Undl.	132,374	6,598,825	126,852	6,276,353
Sulphate	61,371	3,566,077	92,253	5,459,557
All Other	19,091	521,183	24,005	425,721
	507,568	26,851,657	545,329	28,869,844
PAPER:				
News print	1,536,771	88,701,600	1,627,631	97,084,303
Wrapping	9,361	976,949	10,202	1,105,170
Book (cwts)	26,572	251,101	50,324	427,167
Writing (cwts)	2,015	17,426	3,806	34,309
All Other	....	2,318,457	....	2,522,745
		92,265,533		101,163,694

Pulpwood exports have been larger this year, the shipments for the first eight months amounting to 957,496 cords valued at $9,698,863 as compared with 933,297 cords valued at $9,340,-714 in the eight months of 1929.

Empire State Foresters To Meet

Last call for the twenty-fifth annual meeting of the Empire State Forest Products Association will be held at Watertown on Thursday and Friday, October 9-10. The meeting place is the Black River Valley Club. The afternoon session will be given over to business matters and is of particular importance to members. The evening begins with a dinner, very informal, at 7:00 P. M., also in the Club, and a few remarks following it by Dean Baker, Professor Callward and other notables. Motion pictures will be shown, including a film of the new tree planting machine which the Conservation Department has perfected. The atmosphere of the Club should be conducive to informality and a general good time.

On the following day Friday, the committee on arrangements, consisting of Chairman John N. Carlisle, Mr. Keib and Mr. Lawyer, is planning for a field trip and picnic to the interesting plantations and water power developments in the vicinity. This should prove particularly attractive and instructive as well, since the St. Regis Paper Company and the Northern New York Utilities has done an extraordinary amount of forest planting.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Precision Color Measuring Apparatus*

By Monroe Barnard and Paul McMichael[1]

"The measurement of the transmissive and reflective properties of various materials for wave lengths throughout the visible spectral range is a matter of fundamental importance in the work of a colorimetry laboratory, for the data thus obtained under given conditions of illumination and observation constitute a description of the material which is unique and sufficient for the purpose of colorimetry. When multiplied into the spectral energy distribution of the source of illumination, the resulting data are a representation of the entire physical stimulus of the sensation of color—and form the fundamental basis for color specification."

These introductory sentences by H. J. McNicholas preface U. S. Bureau of Standards Research Paper No. 30 entitled "Equipment for Routine Spectral Transmission and Reflection Measurements." On page 838 of this research paper it is stated that "The photometric precision of the brightness matches is believed to be as good as can be obtained with any other type of photometric field used in spectrophotometry." However true this statement was when published (November, 1928), the fact nevertheless remains that "The photometric precision of the brightness matches . . ." is dependent upon visual observation.

The Technical Association of the Pulp and Paper Industry has standardized methods for the chemical, microscopical and physical examination of its products. These methods are such that different technologists are usually in close agreement concerning all the physical qualities of a particular paper except that of its color, for the measurement of which we have heretofore been dependent upon visual observation, with its inherent possibility of error. When it is considered how largely the factor of color affects the sale and use of paper, it will no doubt be agreed that a valuable contribution will have been made to the industry when the measurement and evaluation of the color of paper can be done as exactly as, for example, the determination of its tensile strength.

There are at least five attributes of a paper that contribute in some degree to the concept of its color, as follows:

(1) The spectral composition of the color reflected;

(2) Reflection factor;

(3) Surface texture;

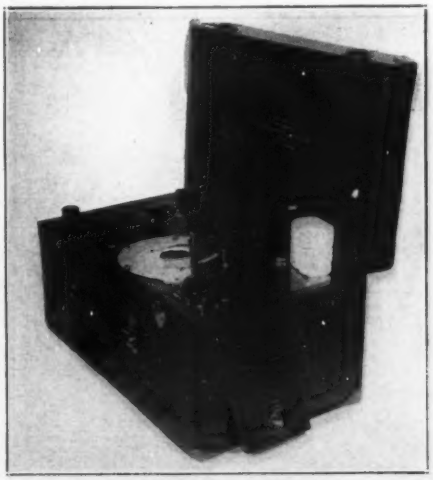
(4) Opacity, or, as frequently expressed in the complementary terms, translucency or transparency.

(5) Transmission.

Unless one has the precision data necessary to define accurately at least the first four attributes listed, those that have the greater significance, the color of a paper can not be described in terms, mathematically expressed, such that different technologists at different times and places will find their observations and records in accord.

By utilizing the photoelectric tube, and thereby wholly eliminating visual observation, all five of these characteristics can be evaluated with precision, the first four with relative ease, and the last with some difficulty owing to the widely varying dispersion qualities of different sorts of papers.

The A. P. C. opacimeter, an instrument developed by American Photoelectric Corporation and distributed by Eimer and Amend of New York City, enables one to measure the translucency of paper with a degree of accuracy within 0.5 per cent, a figure well within the variable limits of different areas of most commercial papers. The sensitivity of this instrument is such that a single line, lightly drawn with a 6-H pencil across the area being examined, is sufficient to change the reading of the opacity factor of some paper as much as 0.4 per cent. The instrument does not require a technologist for its operation, and an opacity determination can be made in less than two minutes. Inasmuch as the measurements are made photoelectrically, the errors inherent to visual observation are wholly eliminated, so that this instrument enables one to secure the precision data required to evaluate one of the attributes of a paper that contribute to the concept of its color.



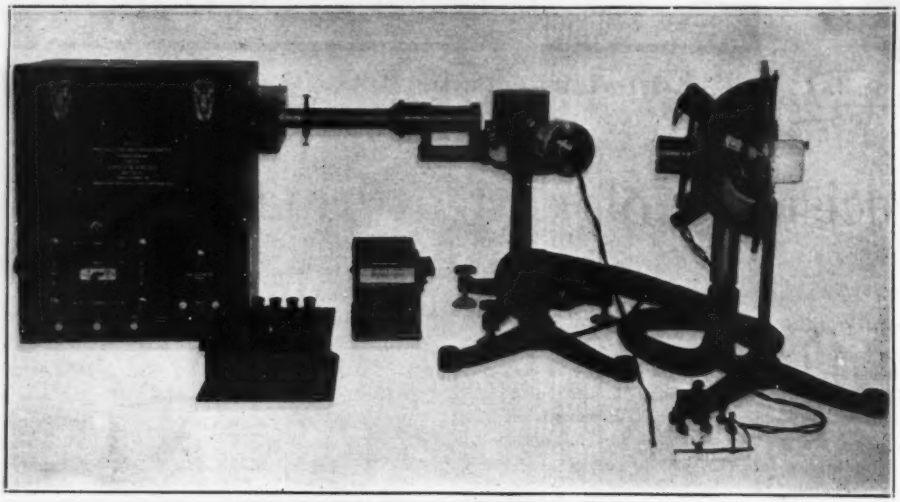
A. P. C. Opacimeter

* Presented by title at fall meeting of the Technical Association of the Pulp and Paper Industry, Erie Pa., September 3, 1930.

[1] American Photoelectric Corporation, New York, N. Y.

The A. P. C. photoelectric spectrophotometer, an instrument also developed by American Photoelectric Corporation, enables one to determine with a high degree of precision the spectral composition of the color reflected from a paper and also its total reflection factor, in terms of the light reflected from a block of pure magnesium carbonate, both of these factors being derived from the same series of measurements.

That one can discover differences with this instrument which



A. P. C. Photoelectric Spectrophotometer

are not detectable by visual observation, and can measure these differences with precision, is illustrated by Figs. 1, 2 and 3. On Fig. 1 are shown the spectral reflection curves of duplicate samples of wood pulp; on Fig. 2 similar curves of the opposite sides of one of these duplicate samples, the curve marked Face being a replica of Curve 1A on Fig. 1; on Fig. 3 the spectral reflection curves of different lots of writing papers that the manufacturer had tried to match exactly; all curves being in terms of the light reflected by magnesium carbonate.

For a clearer understanding of the differences between the spectral composition of the colors defined by the curves on Fig. 1 and 2 on the one hand, and by the curves on Fig. 3 on the other, attention is directed to Fig. 4, on which are graphed typical spectrophotometric curves of pure colors. It will be noted that the colors on Figs. 1 and 2 are rich in red and relatively deficient in blue, whereas those on Fig. 3 are relatively rich in blue and correspondingly deficient in red.

While a description of the surface characteristics of a pulp or paper can be conveyed with photomicrographs, these do not define the differences in eye sensation caused by differences amongst the surface characteristics of products otherwise identical. Such differences in eye sensation result from the light reflection characteristics of the differing surfaces, and can be defined only after measuring the proportion of incident light reflected from the different surfaces at different angles of illumination and observation.

With some accessory equipment, the photoelectric unit and measuring devices of an A. P. C. photoelectric spectrophotometer can be used to measure with precision the proportions of total

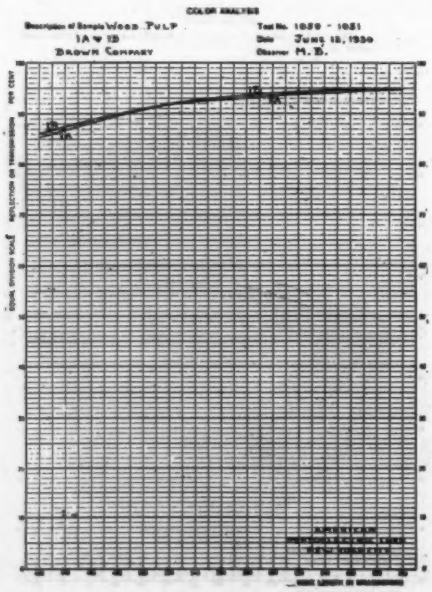


Fig. 1

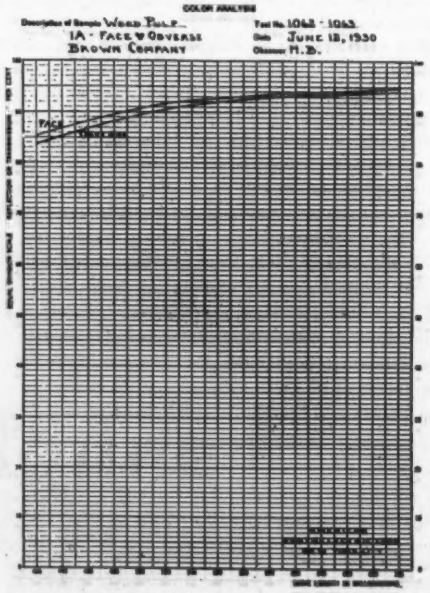


Fig. 2

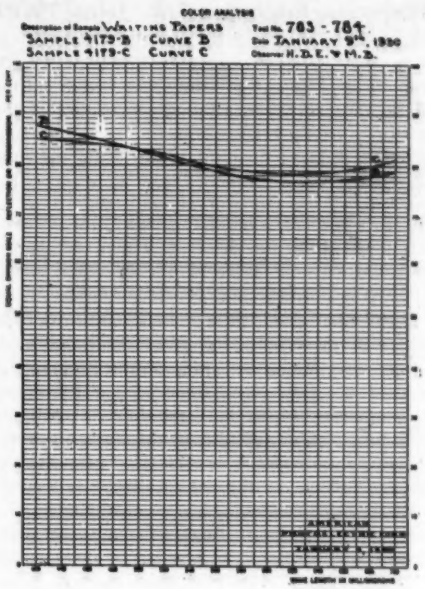


FIG. 3

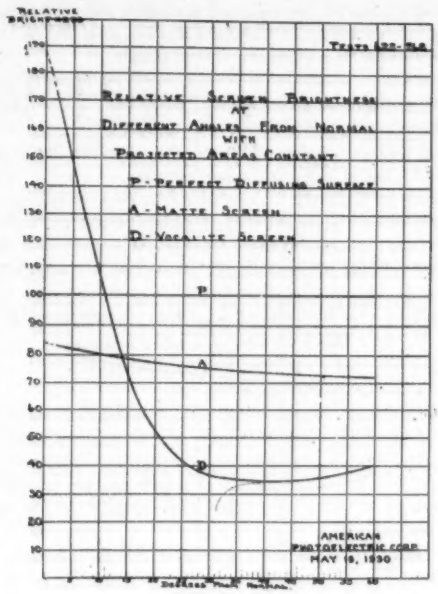


FIG. 5

incident light reflected from surfaces at different angles. The manner in which such measurements may be graphically expressed is illustrated by Fig. 5, which shows the relative brightness at different angles of several talking picture screens that were analysed in the laboratories of the American Photoelectric Corporation.

It is probable that the varying influences upon our visual concepts, the resultants of surface differences between materials otherwise alike, can be evaluated from precision measurements at different angles of illumination and observation of the proportions of total incident light reflected from the different surfaces. Possibly, an arithmetical scale can be established, based upon three measurements, for example, at 15, 45 and 75 degrees from normal, or at 30, 45 and 60 degrees, whichever series develops the more significant data.

For precise measurement of the spectral transmission or reflection characteristics of a substance, it is essential that the apparatus employed be so designed that it wholly eliminates, or makes compensation for, each and every one of the following possible sources of error:

(1) Variations in the color and intensity of the source of illumination.

(2) Variations in the characteristics of the amplifying circuits during measurements.

(3) Variations in the spectral composition of the color of the material during its analysis, which may be caused by heat from the illuminating source.

(4) Variation in linearity of the recording instrument.

(5) Inaccurate wave-length calibration of spectrometer.

(6) Departure from linearity of amplification.

(7) Time lag of recording mechanical parts with its consequent distortion of measurements.

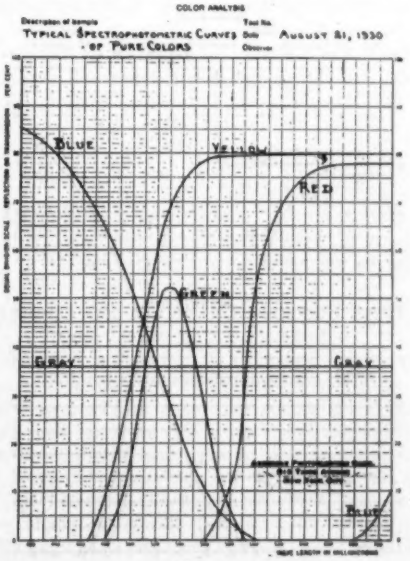


FIG. 4

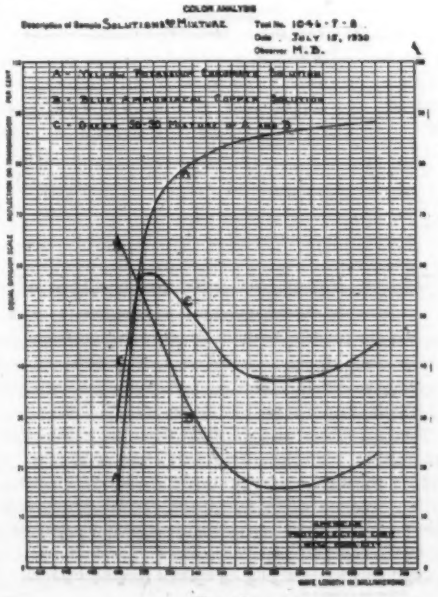


FIG. 6

(8) Multiplicity of movable contacts with its consequent greater possibility of instability in the electrical circuits.

(9) Variations in voltage of power supply.

(10) Improper illumination of the material under examination.

(11) Stray light in spectrometer.

(12) Non-interchangeability of elements.

(13) Variations in the width of the spectral band passed by spectrometer slit at different wave lengths.

(14) Lack of linearity of photoelectric tube response.

(15) Variations of selectivity of different photoelectric tubes.

In the A. P. C. photoelectric spectrophotometer all these possible sources of error have been eliminated, or are compensated for.

In addition, this instrument has been designed so as to have incorporated in it the following desirable features:

(1) Simplicity of operation and maintenance.

(2) Interchangeability of parts.

(3) Adaptability to miscellaneous colorimetry laboratory requirements, such as determination of the relative brightness of materials at different angles of observation, as illustrated by Fig. 5.

(4) Adaptability to precision measurements of solutions and their mixtures at some particular wave length for the purpose of quantitative analysis.

For an illustration of the application of the photoelectric spectrophotometer to quantitative analysis, attention is directed to Fig. 6.

A, B and C thereon are the spectral transmission curves of two solutions and of a mixture thereof respectively. To determine accurately the proportions of the two ingredients in the mixture, precision transmission measurements of each ingredient and of the mixture were all secured at some one particular wave length, and from these measurements the proportions of the ingredients in the mixture were derived according to the formula:

$$T_m \text{ equals } T_1^{\,n_1} \times T_2^{\,n_2}$$

in which

T_m is the transmission factor of the mixture at some particular wave length.
T_1 is the transmission factor of one of the ingredients of the mixture at the same wave length.
T_2 is the transmission factor of the other ingredient of the mixture at the same wave length.
n_1 is the decimal proportion of the first ingredient in the mixture.
n_2 is the decimal proportion of the second ingredient in the mixture.
n_1 plus n_2 equals 1

This application of the photoelectric spectrophotometer to quantitative analysis is described under the caption *"Quantitative Analysis by Monochromatic Transmission"* in the Analytical Edition of Industrial and Engineering Chemistry, October 15, 1930.

With the two instruments described, one can secure the accurate data necessary to evaluate the several attributes of pulp or paper that influence our concepts of their colors. With these data in hand, it becomes merely a matter of agreement amongst interested technologists as to how they shall be expressed and employed. Thereafter all guesswork will be eliminated from color analysis and evaluation, and it will be replaced by mathematical expressions predicated upon data of precision.

Sodam Paper Mill Resumes Operations

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., September 29, 1930.—Operations were resumed this week at the old Sodam Paper Mill in Rensselaer County situated near Walloomsac and the plant will furnish steady work to about fifty hands at the start. The mill had been idle for the past six years and considerable overhauling of the property was necessary to place it in first-class condition. For a number of years the mill was operated by the Wellingtons, of North Bennington, Vt., but with the death of the two brothers, Robert and Edward Wellington, the business was discontinued. A new concern recently formed in New York City will use the plant for the manufacture of a grade of paper which will be used in the production of cardboard boxes.

Filtration Engineers Inc. Joins TAPPI

The most recent company to join the Technical Association of the Pulp and Paper Industry is Filtration Engineers, Inc. of Newark, N. J. Filtration Engineers began business in the latter half of the year 1919, although incorporated the previous year. At this time they were consultants specializing in filtration and waste product disposal. The initial machine put out was an automatic drier for white lead, in which all white lead dust hazard is eliminated and at the same time, effecting a better product with an economy in operation.

This combined filter and drier, in which the white lead cake is conveyed through the drier in a ribbon-like form, has been expanded so that pottery clays are today being filtered on continuous filters and dried to a critical moisture content over steam heated drums. In this application of the combined unit, incorporating continuous filtration and continuous drying, the conveyance of the cake is obtained by parallel strings so that the cake thickness, which is very thin, is maintained in its ribbon-like form. One of the factors making for successful operation of this unit is the use of the Feinc cake compressor by which the texture of the cake is increased after the compression under high vacuum.

The advent of Filtration Engineers into the paper industry came through the success which a high submergence filter had obtained in the sugar industry of this country. The initial installation was made at Sault Ste. Marie, in the plant of the Spanish River Pulp & Paper Company, now a part of the Abitibi Power and Paper Company. The successful operation of this unit, whereby the life of the wire on the cylinder mold is materially increased, due to the elimination of couch roll and the life of the strings, six months or more, occasioned the repeat order for a white water saveall. Col. H. C. L. Jones, who, as manager of Spanish River, had purchased this equipment, as president of the Mersey Paper Company, Ltd., ordered FEinc filters for his new mill.

Today these machines are established in the paper industry wherever suction filters can be of service to the industry and are being sold not only in this country and Canada, but in Europe as well.

Filtration Engineers, Inc., will be represented in the Technical Association by G. W. O'Keeffe.

TAPPI Notes

E. H. Nunn has been transferred from the West Linn, Ore., mill of the Crown Willamette Paper Company to the laboratory staff at Camas, Washington.

Paul Torre has left the Michigan Paper Company of Plainwell, Mich., to take charge of the paper mill department of the A. E. Staley Manufacturing Company, Decatur, Ill.

L. W. Crouse for several years with the Paper Makers Chemical Corporation at Easton, Pa., has also gone with the A. E. Staley Manufacturing Company as New England representative. He will be in Boston.

F. H. Knowlton who has been the New England representative of the A. E. Staley Manufacturing Company, has now been transferred to the central plant at Decatur, Ill.

New Forestry Course at St. Lawrence

[FROM OUR REGULAR CORRESPONDENT]

CANTON, N. Y., September 29, 1930.—A new forestry course for students at St. Lawrence University was announced this week which will be under the supervision of Professor Floyd H. Callward. President Sykes told the students that the university planned to plant several million trees within the next few years and with the addition of the new course he hoped that interest in reforestation would be aroused. He also said that over a million trees had been planted during the single year that the university had been interested in the work and plans call for expansion of a wide nature.

The Determination of pH Values and Total Acidity of Paper*

By B. L. Wehmhoff[1]

The following is a progress report of the cooperative research on methods of determination of pH values and total acidity being conducted by the Bureau of Standards, Bureau of Chemistry and Soils, and the Government Printing Office. A preliminary report on this work was presented to the fine and special papers committee at the annual meeting of the Technical Association of the Pulp and Paper Industry in New York in February, 1930.

Grades of Paper Represented

The quantity of paper in the original samples on which the preliminary report was presented was found to be insufficient. A new set of samples representing the following grades of paper was therefore selected for further study: 100 per cent rag ledger, 100 per cent rag machine-finish book, 50 per cent rag machine-finish book, sulphite bond, kraft wrapping, and news print. The samples were cut in four equal portions, one of which was sent to the Bureau of Standards, another to the Bureau of Chemistry and Soils, and a third set was used at the Government Printing Office. The fourth set was later divided in two parts, one of which was sent to the Rag Content Paper Manufacturers' laboratory and the other to the chairman of the chemical methods subcommittee of the paper-testing committee of the Technical Association of the Pulp and Paper Industry. There are, therefore, five duplicate sets of these papers being used for cooperative testing work. This report, however, covers only the work being done by the three Government laboratories.

Total Acidity

Total acidity is being studied by the Bureau of Standards by making parallel electrometric and colorimetric pH titration curves to determine the pH ranges of the most important buffer constituents of the paper extracts. This will establish a relationship between the pH changes on titration and the total acidity, and will yield data to enable the determination of the best indicators to give that part of the titratable acidity that is of the greatest significance with relation to the permanence of paper. The data available at present on these determinations are insufficient to permit of a report being made.

pH Determination

pH determinations have been made on the samples by several different methods including the hydrogen electrode, quinhydrone electrode, Fawcett-Acree isohydric indicator and commercial colorimetric methods. In addition, determinations were made on two samples by means of the glass electrode. Tests were also made on different ratios of paper pulp to water, on samples ground by different methods, on samples extracted for varying periods of time and also on samples extracted under different conditions. Since these determinations have not been completed in all three laboratories neither complete data nor definite conclusions can be given at this time.

Results Obtained

The following tabulation shows the results obtained by various methods using the same ratio of paper to water as reported in the preliminary report—that is, 2.5 grams of paper to 125 cubic centimeters of water. All samples reported in this tabulation were ground in the Swedish mill mentioned in the previous report.

COMPARISON OF pH VALUES OBTAINED BY DIFFERENT METHODS

Government Printing Office Test No.	Kind of paper	Hydrogen electrode: Bureau of Standards	Hydrogen electrode: Hygienic Laboratory, Public Health Service	Quinhydrone electrode: Government Printing Office	Quinhydrone electrode: Bureau of Chemistry and Soils	Isohydric indicator: Bureau of Chemistry and Soils	Isohydric indicator: Bureau of Standards
48464	100 per cent rag ledger	...	[1] 4.91	5.00	4.95	4.85	[2] 4.75
45028	100 per cent rag M. F. book	...	[1] 4.15	4.18	3.83	3.95	[2] 4.00
53306	50 per cent rag M. F. bank	[2] 5.14	...	4.69	4.63	4.60	[2] 5.20
53515	White sulphite bond	[2] 4.37	...	3.91	3.83	3.70	[2] 4.50
51062	Kraft wrapping	[2] 6.75	...	6.02	...	...	[2] 6.90
53185	News print	[2] [3] 5.37	...	4.64	4.58	4.50	[2] 5.50

[1] Determined by both hydrogen electrode and glass electrode. Extractions made at Government Printing Office.
[2] Extractions made at 98 deg. C. over water bath.
[3] Same solution checked at Government Printing Office gave 5.38 by quinhydrone electrode.

The extractions at the Bureau of Standards were made at 98 deg. C. on a water bath. The others were made by boiling at 100 deg. C. on an electric hot plate. Preliminary data indicated that no appreciable variation in results would be found in parallel extractions made by the two methods. However, when the pH values were determined at the Bureau of Standards it was found that they were considerably higher than those reported by the other two laboratories. It seems possible that the method of extraction may effect the pH determination. The Bureau of Standards obtained a pH value of 5.37 by the hydrogen electrode on sample 53185. A portion of the same extract was tested at the Government Printing Office by the quinhydrone electrode method and gave 5.38. Another extraction on the hot plate at the Government Printing Office on a new portion of the paper gave 4.79.

The Bureau of Chemistry and Soils reports but slight difference in the pH values obtained by extracting under the different conditions mentioned. In view of the varying results obtained by the different laboratories under slightly different extraction conditions, it is apparent that considerable more work must be done to determine the cause of such variations. Complete data on this and also on the tabulations given in the preliminary report will be covered in the final report.

Through the courtesy of Dr. Floyd De Eds of the Hygienic Laboratory, United States Public Health Service, determinations on two samples were made by both hydrogen and glass electrodes. The extracts were made at the Government Printing Office Laboratory and taken to the Hygienic Laboratory, where the determinations were made within a few hours.

Later another series of extractions were made and sent to the same laboratory. Due to the pressure of other work, the samples were allowed to stand in Pyrex containers for approximately three weeks. It was then found that abnormal "drifting" occurred, and that accurate determinations could not be made with either the hydrogen or glass electrode. The extracts were returned to the Government Printing Office laboratory and determinations were made with the quinhydrone electrode. No trouble was experienced in getting results, but with one exception the pH values were considerably higher than those determined on portions of the same extracts when first made. The differences are shown in the following table:

* Presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, September 3 to 5, 1930, at Erie, Pa.

[1] Member TAPPI, technical director, Government Printing Office, Washington, D. C.

Sample No.	pH on fresh extract	pH on same extract after standing for 3 weeks
53185	4.95	5.44
53515	4.15	4.41
48464	5.29	5.82

A slight mold growth was noted in one of the samples. The above indicates that it is not feasible for different laboratories to attempt checking on the same extract unless the determinations can be made within a few hours after the extraction is made.

Tests at the Bureau of Standards and the Government Printing Office indicate that the variation in pH values due to the lapse of time between extraction and determination of pH value is particularly noticeable in glue-sized papers, which indicates some colloidal effect. Additional work is planned to determine the causes of these variations.

Carbon dioxide was removed in the electrometric determinations. This was not necessary in the colorimetric determinations, since previous work indicated that carbon dioxide has no appreciable effect on colorimetric pH determinations in the range covered by these papers with the possible exception of kraft. The results obtained with the hydrogen electrode, quinhydrone electrode, and Fawcett-Acree isohydric indicator method were compared. The determinations reported by these three methods check very well when the extractions were made in the same manner, especially when it is considered that they were made in different laboratories by different chemists. It will be noted that the extractions by the Bureau of Standards were made in a different manner than at the other two laboratories.

The results obtained with some commercial colorimetric sets where the indicators were adjusted to either the upper or lower points of their ranges have been found to be inconsistent and irregular. Colorimetric indicators adjusted to the mid point of their ranges will probably be sufficiently accurate for mill-control work. However, where accurate results are desired and colorimetric methods are preferred, it is recommended that isohydric indicators adjusted to 0.2 pH intervals be used. A suggested procedure for these determinations has been made by the Bureau of Standards in a circular, copies of which may be obtained from that bureau.

The following tabulation gives the results obtained with different proportions of paper and water. These samples were all ground in the Swedish mill and the extractions were made on an electric hot plate. The pH values on the extractions on samples of 2.5 and 3.75 grams of paper to 125 cc. of water agree within rather close limits. Those made on extractions of 1.25 grams of paper show a tendency toward slightly higher results.

COMPARISON OF pH VALUES OBTAINED WITH DIFFERENT PROPORTIONS OF PAPER AND WATER

Determinations made with quinhydrone electrode

Government Printing Office, Test No.	1.25 grams to 125 cubic centimeters, Government Printing Office	2.5 grams to cubic centimeters		3.75 grams to 125 cubic centimeters, Government Printing Office	Maximum variation in pH
		Government Printing Office	Bureau of Chemistry and Soils		
48464	4.99	5.00	4.95	5.19	0.20
45028	4.39	4.18	3.83	4.16	0.56
53306	4.77	4.69	4.63	4.76	0.14
53515	4.11	3.91	3.83	3.86	0.28
51062	6.07	6.02	...	5.86	0.21
53185	4.81	4.64	4.58	4.57	0.24

Duplicate determinations were made at the Government Printing Office on the same series of samples, with the paper cut in one-fourth-inch squares. Following is a comparison of the results with those obtained on the ground samples:

Government Printing Office Test No.	pH values	
	Ground	Cut in one-fourth-inch squares
48464	5.00	4.75
45028	4.18	4.18
53306	4.69	4.62
53515	3.91	3.84
51062	6.02	5.87
53185	4.64	4.57

With the exception of No. 48464, which is a tub-sized sheet, the results agree within the limits of experimental error. However, the determinations on the cut samples all tend to be slightly lower than those on the ground samples.

Further research on several points will be necessary before any definite recommendations can be made. Among these are the following:

Manner of making the extraction.

Allowable length of time between extraction and determination.

Colloidal effect of certain extracts.

Temperature at which quinhydrone is added to extract.

Completion of pH titration curves and determination of relationship between pH and total acidity.

Comparison of results obtained by electrometric acidity titration with those obtained by Kohler-Hall and other methods.

Close checks on the same extracts can be obtained by different methods, including the hydrogen, glass and quinhydrone electrodes, and Fawcett-Acree isohydric indicators. The principal difficulties appear to lie in some of the factors mentioned above, together with the personal equation of the analysts.

Upon completion of this work a joint report will be made by the three Government laboratories. This report will include all experimental data obtained in each laboratory, together with any data furnished by other laboratories having tested the same set of samples and also complete details of recommended methods.

Paper Coating Materials Studied

WASHINGTON, D. C., September 15, 1930—As a result of the interest manifested among manufacturers in the investigation on Use of Glue in Coated Paper other paper-coating materials have recently been studied by the Paper Division of the Bureau of Standards. The purpose of the investigation was to keep the public informed of new developments in raw materials and promote the use of domestic resources, which would become very important in the event of any disturbance limiting the supplies of foreign origin. In the later study 4 different coating clays, 2 foreign and 2 domestic, and 1 commercial compound of domestic diatomaceous earth were the minerals employed. Three types of foreign origin. In the later study 4 different coating clays, starches—were used. The tests were confined to papers suitable of high-grade commercial adhesives—casein, glue, and modified the commercial practice employed in applying a single coating to paper.

The clays worked satisfactorily with the different adhesives, the domestic clays comparing favorably with the foreign, but the coating of diatomaceous earth did not adhere well to the paper. It was believed that the loss of adhesiveness was due to the high alkalinity of the mineral.

Relative to the comparative quality of the adhesives as paper-coating materials, the tests indicate that the starches may not have as good adhesive quality as casein or glue, but all coatings containing 18 parts of starch per 100 parts of clay were well bound to the body papers. Graded as to their clay suspending property the adhesives are rated in the following order: Starch, casein and glue.

Printing tests of the papers were made at the Government Printing Office which used their regular half-tone process. Equally good results were obtained with the American and foreign clays, and with the three different kinds of adhesives. Both the starch and glue coatings, however, had less water resistance than the casein coatings and, therefore, would possibly not be suitable for lithographic processes requiring a high degree of water resistance.

A complete report of this investigation is being prepared for publication.

Rhinelander Mill Addition Nears Completion

APPLETON, Wis., September 29, 1930.—Thirty men are at work on the addition to the Rhinelander Paper Company's mill at Rhinelander Wis. The foundations are being poured and the walls will be rushed to completion so the building can be enclosed by the latter part of October. This unit will house a new wood room and will enlarge the company's facilities.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstract Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C. The charge for this service is 25 cents per page. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency not stamps.

Sulphite Waste Liquors

Process for the Preparation or Stabilization of Solutions, Emulsions or Suspensions of Materials Which Are Usually Unmixable With Water, By Means of Solutions Containing Lignin Matter From the Sulphite or Bisulphite Process. CH. Fr. Cross, London, England and Alf Englestad, Varda, Norway. Austrian pat. 114,869.—From such materials, coating means for wood and iron, besides printing inks or means of insect extermination, can be obtained, when a material suitable for each single case is added.—J.F.O.

Concerning the Recovery of "Bakers" Yeast From the Waste Sulphite Liquors. Erik Hagglund. Papierfabr. 28, Nov. 5, 65-68 (Feb. 2, 1930).—The description of a factory now producing 800,000 kilograms pressed yeast yearly. The waste liquor is neutralized with chalk at as high a temperature as possible during which it is agitated by air. After neutralization and settling which takes in all 80 hours, the decanted liquor is filtered and centrifuged and cooled to about 30° C., the temperature for fermentation, by means of a copper cooler. The liquor is then ready for fermentation which requires a certain culture to obtain the highest yield, the time being about 15 hours. Air is again used for agitating the liquor during the entire fermentation process in order to prevent alcohol formation. The yeast is then centrifuged off and washed in a separator with water, which is a very particular process, in that all the sulphite waste liquor must be removed. The yeast is then pressed into a filter press, formed and packed. The yield is about 22 kilograms per cubic meter of waste sulphite liquor.—J.F.O.

Process for the Treatment of Waste Liquor in the Manufacture of Pulp by Cooking the Fibrous Materials in Plants With Sodium Sulphite or Sodium Bisulphite Solution. Dr. Eric Ludwig Rinman, Djursholm, Sweden. German pat. 487,219, April 15, 1926.—The waste liquor is evaporated, and, if necessary with the previous, simultaneous or following separation of certain substances present, whereupon, the combustible matter which contains the evaporated matter is burnt and if necessary in combination with added combustible substances. This combustion is carried out in such a manner that the sodium compounds present in the waste liquor is converted into sodium sulphide, or, sodium sulphide and soda. The newness of the process consists essentially in that the combustion residue, after dissolving the same in water, is treated with one or more oxides of such metals whose sulphur compounds are insoluble in the sodium liquor, so that all the sodium goes over to sodium hydroxide. The solution containing free sodium sulphide is finally treated with sulphur dioxide gas or solutions of sulphur dioxide, after the separation of the precipitate, for the purpose of making new cooking acid.—J.F.O.

Miscellaneous Pulping Processes

Process for Obtaining Cellulose By Cooking Fibrous Materials from Plants With an Aqueous Solution of at Least One Oxygen Compound of Isocyclin Series in Which at Least One Hydrogen Atom of the Oxy Group Is Replaceable By a Metal. Firma Dr. Otto C. Strecker, Darmstadt, Germany. German pat. 486,533, (March 30, 1926):—The process consists in reusing for further cooking the oxygen compound under addition of like substances, that is, substances of phenolic character which develops from the fibrous material of the plant during the cooking, and in such a manner that a part *i.e.* about a quarter of the cooking liquor after its initial use, is separated and the remainder supplied for the next cook until the required concentration and quantity is attained by the sale addition of constituents of cation ions and the necessary water.—J.F.O.

Process for the Manufacture of Cellulose From Straw, Esparto, Reeds and Similar Substances. E. L. Rinman, Djursholm, Sweden. Finnish pat. 12,742, (March 12, 1927).—The cooking process and the next following washing, is so conducted that the substances in the raw material having a sizing action are not destroyed or removed and hence remain in the finished paper produced from the raw materials which are self sizing.—J. F. O.

Cellulose From Straw. Henri du Boistesselin. French pat. 674,410, (Sept. 18, 1928).—Straw at 80° to 85°C. is treated with nitric acid of about normal strength and in amount such that its strength does not drop below half-normal. The straw is drained, washed and dried. The acid juices charged with by-products are heated to 65° to 85° C. in the presence of a catalyst, *e.g.*, ferric sulphate or mercuric nitrate, to transform as much as possible of the hydrocarbons into oxalic acid.—A. P.-C.

Process for the Manufacture of Paper Stock. Gessellschaft fur Mechanische Cellulose, g.m.H. Berlin, Germany. German pat. 487,282, (Jan. 14, 1926).—Addition to patent 413,582.—The dried raw material, in the form of the usual pressed bales of 50 to 80 kilograms used in transport, is moistened and steamed. —J.F.O.

Beating

Hydration By Beating. Arthur Klein, Papierfabr 27, No. 48, 756 (Dec. 1, 1929).—The relation of the length of the fiber to the thickness is about 75 to 1 but after the beating it often assumes the proportion of 15 to 1. In the hydration of the fiber or in the absorption of water, the length hardly changes while the thickness increases from 20 to 30 per cent.—J.F.O.

Increasing the Efficiency of Jordans By Separate Electrical Drives. Ernst Blau, Papierfabr 27, No. 51, 803 (Dec. 22, 1929). —With separate electric drive, the power consumption and hence the work done directly on the stock can be measured. --J.F.O.

Concerning the Construction of Economic High Capacity Beaters on the Grounds of New Operation Experiences and Data Obtained. Hermann Mallick, Duren, Germany. Papierfabr 28, No. 3, 33-41 (Jan. 19, 1930).—The efficiency of beaters are about 25 to 30 per cent but in many cases only 10 to 20 per cent. Two thirds of the power is consumed in circulating the stock and in overcoming friction. It is shown that the power required increases with an increase in the height of the stock before the beater roll. The limit for the peripheral speed of the roll should be between 9.5 and 13 meters per second. The new "Rapid" beater, in which a part of the stock follows the roll and the "Supra Rapid" beater in which all the stock follows over the roll is described and so far these beaters have given excellent results. Efficiencies of over 70 per cent have

been attained. The most optimum specific pressure between the beater roll and the bed plate is given for each separate grade of stock.—J.F.O.

pH Value of Water and Stock and its Relation to Beater and Calender Colors. Ralph W. Shaffer. MacAndrews & Forbes Co., Camden, N. J. Paper Trade J. 90, No. 23, 82-83 (June 5, 1930); Paper Mill 53, No. 22, 28, 46 (May 31, 1930).—A discussion of the importance of pH value of the stock (both of the water drained from the fibers and of the fibers themselves) on the results obtained in both beater and calender coloring, particularly with boards. Incompletely washed pulp containing an appreciable amount of residual acid or alkali will have a quite different pH value from the water in which it is suspended in the beater and may have a very injurious effect on both sizing and coloring; this can be overcome by first neutralizing the pulp to the proper pH value. The pH value in the beater considerably affects the fixation of dyes and the shades obtained, so that in order to obtain desired results it is essential to work to definite pH conditions. In calender coloring, the pH value of the dye solution should be as nearly the same as that of the sheet as possible. When the color formula includes both acid and basic dyes, if the acid dye is added first the pH should be brought to about 4.5 before adding the basic dye; if the basic dye is added first the pH should be brought to about 7.1 to 7.3 before adding the acid dye.—A.P.-C.

Machine for the Beating of Paper Stock. Ing. K. V. W. Sorbom, Frovi, Sweden, Finnish pat. 12,591. (Oct. 26, 1926).—The beating process occurs between a solid plate provided with sharp edged holes and a movable plate provided with radial arranged knives, both under a housing.—J.F.O.

Bleaching

Bleaching Sulphite Wood Pulp. Gosta P. Genberg. Can. pat. 297,195. (Feb. 4, 1930).—The pulp is bleached in stages; between stages it is boiled with 5% to 10% of caustic soda for 4 to 10 hours, diluted in cold water and washed, treated with dilute hydrochloric acid and 3% to 5% of chlorine in proportion to the weight of the fibers and finally washed and thickened.—A. P.-C.

Coating Material and Fillers

Consistency in the Application of Coatings to Paper. R. M. Cobb and D. V. Lowe. J. Rheol. 1, 158-167 (1929).—A pulp of butter-like consistency made from Orange II on a gloss-white paper may need to be bound to the surface by casein or starch adhesive. With 75% glue the color tends to pull away from spots forming "bird's-eyes." Consistency measurements were made with the MacMichael viscometer and the Gardner mobilometer. The surface tension was also measured by the De-Nouy tensiometer. There seems to be a relation between the phenomenon and the apparent viscosity of the mix as well as the change in composition occurring at the liquid-solid interface.—C.J.W.

Kaolin Industries as an Ally to the Manufacture of Paper. Papierfabr. 27, No. 51, 805 (Dec. 22, 1929).—Article contains facts and information on the kaolin industry of Germany.—J.F.O.

Silicate of Soda in Paper Manufacture. James G. Vail. Philadelphia Quartz Co., of Philadelphia, Pa. Paper Trade J. 90, No. 23, 93-95 (June 5, 1930); Paper Mill 53, No. 22, 40, 42, 44 (May 31, 1930).—A brief discussion of the use of sodium silicate in the pulp and paper industry and of the qualities it imparts to paper.—A.P.-C.

Drying

Penetration of Water Vapor Into Wood. L. M. Pidgeon and O. Maass. McGill University, Montreal, Can. Research Notes 2, 318-326 (May, 1930).—The rate of diffusion of water vapor through wood was studied through a comparison of the time taken for samples of various thicknesses to become saturated. This process is, in a sense, the converse of natural drying, and for comparative purposes is more amenable to careful control of pressure and temperature. Continuous measurements of the amount of absorption were carried out by the use of a quartz spring balance completely enclosed in the apparatus at a constant vapor pressure. Comparative numerical valves were obtained of the rate of diffusion of water vapor through space (Picea canadensi) and pine (Pinus banxiana) in various directions through heartwood and sapwood, and through samples of different lengths. The results are considered as evidence that the movement of water through wood, at concentrations below the saturation point, takes place as vapor diffusion through the spaces of the wood structure due to the pressure gradient consequent on the difference of moisture content.—A.P.-C.

Study of Water Removal on Board Machines. George R. Wyman and R. A. Wilkins, Bird & Son, Inc., East Walpole, Mass. Paper Trade J. 90, No. 13, 53-64 (March 27, 1930); Tech. Assoc. Papers Series 13, No. 1, 211-222 (May, 1930).—Results are given in detail of a series of tests made on two cylinders paper machines used for the manufacture of container board to determine the water removal efficiency of various parts of the machine, with the hope that such data might bring out points of attack to increase the efficiency of the machines. The results are not considered as conclusive, and further tests are projected. The data obtained are considered to indicate that the felts are one of the greatest controlling factors in water removal. The increasing of the efficiency of the vats relative to water removal should be studied; *e.g.*, by investigating the effect of weighting the couches, varying the suction and determining the most satisfactory mesh for the outer cylinder wire.—A.P.-C.

Evolution of the Drying of Board. Reuss. Papierfabr. 27, No. 52, 819-823 (Dec. 29, 1929).—The first method of drying board was to let it lie out in the fields and meadows, to be there dried by the sun and winds. This produced a very good sheet, whose exceptionally good qualities were attributed to the drying in a moist heat and uniformly. The next method was loft drying. The third method of drying the board on drying cylinders also showed itself to be faulty, in that the board was roasted and the fibers next to the cylinders were damaged, and also the amount of steam used in the evaporation was excessive. Chambers were then introduced, with heating coils, but here also the drying was not uniform, sometimes it was 5 per cent on the edges and 40 per cent in the middle and the steam consumption was also too high. Heated air was next tried, it was better, but it also had the disadvantage that the edges dried out first. A system of heated air circulation is now in use, consisting of a canal in which the saturated air is used to moisten the board to 10 to 12 per cent, required for the finish. This system, worked out by Schilds, uses only 1.5 kilograms of steam per kilogram of water evaporated. The latest arrangement for the drying of board consists of an endless belt, on which the board is periodically turned over and passes over a series of warm air currents. The times of the process can be regulated according to the kind of board and the moisture content desired. Rolls can also be used instead of the endless belt.—J.F.O.

Web-Drying Device. Albert E. F. Moone. U. S. pat. 1,742,365, (Jan. 7, 1930).—The sheet (either pulp or paper) is passed successively around two suction rolls, so that both sides are subjected to the drying action of the vacuum. The suction box inside each roll extends over only part of the surface in contact with the web, so that the latter engages the roll some distance before reaching the suction area and leaves the roll some distance after passing out of the suction area. The suction box is supported at the bottom on adjustable wedges, which in turn are mounted on trunnion supports engaged and rigidly suported by clamping caps carried by the frame of the machine. This construction permits of readily adjusting the angular position of the suction box and of compensating for wear of the outer edges in

contact with the inner surface of the roll. When the sheet is not of the full width of the roll, cover strips are placed over the roll at the suction areas which are not covered by the sheet.—A.P.-C.

Method and Apparatus for Drying Wood Pulp. R. D. Kehoe. U. S. pat. 1,751,552, (March 25, 1920).—The pulp is partly dried on a wet machine (preferably a Kamyr machine), from which it passes in sheet form to a breaking-up device of any suitable construction capable of shredding it without material injury to the fibers. It is then carried in by a conveyor through a first-stage drying chamber heated by means of hot air to a temperature of about 250° to 300° F., through which it travels at a speed which may be regulated according to the moisture content of the pulp. From this chamber it then passes through a second-stage drying chamber, divided into several compartments where it is further dried by hot air ranging in temperature from about 200° to 250° F. at the inlet end to not over over 120° F. at the outlet, where the pulp is delivered to a cooling chamber to reduce its temperature to about 50° to 80° F. It finally passes through a conditioning chamber heated to 100° to 150° F. to bring it to the desired moisture content. The rate of travel of the pulp in the various chambers and compartments can be regulated as required, as can the temperature of the heating air. In order to prevent any fibers entrained by the air from being carried from the pulp to the air-heating coils where they might be charred and would then soil the remainder of the pulp over which the air is returned, the air is drawn downward through a sump where it is sprayed with water which removes the fibers and at the same time cools down the air so that after the latter has been reheated it has a greater water-carrying capacity.—A.P.-C.

New Type Dryer for Fine Papers. J. J. Sullivan. Proctor and Schwartz, Inc., Philadelphia, Pa. Paper Trade J. 90, No. 23, 99-100 (June 5, 1930); Paper Mill 53, No. 22, 22-24 (May 31, 1930).—In the Proctor and Schwartz drier for tub-sized writing papers, a small tube or floating roll is dropped into each loop as it is being formed so that it gently rolls to the bottom of the loop. The main carrying poles are also tubes or small rolls and are caused to rotate as they move through the drier, thus causing the tubes in the bottom of the loops to also slowly rotate. The latter put the paper under just sufficient tension to prevent buckling or wrinkling, but not enough to prevent shrinkage or cockling of the sheet. The advantages claimed are: eliminates expensive loft drying, is small and compact, eliminates stick marks, allows free shrinkage of the paper which produces the cockle, saves time, gives paper of higher strength and saves labor.—A.P.-C.

Drier Apparatus for Paper Making Machines. Russell Carpenter. U. S. pat. 1,756,630, (April 29, 1930).—Co-axial with each drier roll is a carrier of the diameter as the drier roll. Each carrier consists of an annular sheave having a grooved periphery coinciding with the periphery of the corresponding drier roll. The sheave is mounted on an annular series of anti-friction rollers on the drier journal; it is normally free from the roll, but means are provided for pressing it against the roll when required, so that it is then frictionally driven at the same speed. The sheaves carry the ropes for threading the paper through the drier section of the machine.—A.P.-C.

Paper Machine Drier. Claude C. Hockley. U. S. pat. 1,757,-948, (May 6, 1930).—The drier roll is partly enclosed by a hood open at one end and arranged to enclose and form a low passageway over part of the circumferential surface of the roll. A nozzle is provided for blowing a transverse sheet of air into the other end of the hood at high velocity upon the paper web, in a plane which, if produced, would cut the circumferential surface of the roll so as to break up the film of insulating moisture enveloping the paper web.—A.P.-C.

Drying of Coated Paper. J. B. Meyer, Papierfabr. 28, No. 2, 17-21; No. 3, 41-46 (Jan. 12, 1930).—The important viewpoints of a theoretical and practical nature concerning the drying of coated paper are discussed in relation with the arrangement of the drying equipment for one and two sided coated papers, including wall paper. The necessary operation data for the calculation of the dryers is determined and in conclusion, the latest patent literature is critically reviewed.—J.F.O.

Arrangement for the Dryer Section With Several Divisions and Various Temperature Relations. A. Bol. Svenska Flaktfabriken, Stockholm, Sweden. Swedish pat. 68,054 (Jan. 4, 1927).—The drying of the material occurs in three or more divisions by means of various warm air currents.—J.F.C.

Electrical Paper Machine Drive. Siemens-Schuckertwerke A.G. Berlin, Germany, German pat. 486,985 (July 8, 1926).—The individual cylinders of the dryers are driven by synchronous motors whose armatures are fed by an alternating generator, whereby these are automatically driven by a motor regulated according to a speed governor in the same manner as the other motor units of the paper machine.—J.F.O.

Paper Machine. Erik Alexander Ohlin and Frans Oskar Carlsson, Hyltebruk, Sweden. Czechoslovakian pat. 30, 230.—The arrangement includes a drying cylinder and a press section arranged between the drying cylinder and the couch press, each press section consists of two pairs of press rolls arranged one behind the other and each pair of rolls having the customary bottom felt. The felt used for the bottom press nearest the couch roll is made of hard twisted threads and is relatively pervious while the felt used for the press next to the dryers is closely woven.—J.F.O.

Paper-Machine Drier. William H. Millspaugh assignor to the Paper and Textile Machinery Co. U. S. pat. 1,745,685, Feb. 4, 1930.—The main object of the invention is to provide a method of mounting the driers which will permit of eliminating the driving gears. To this end the trunnions of the drier rolls are each supported on two fairly large rolls mounted on short stationary shaft by means of internal anti-friction bearings. The journal-supporting rolls are carried by a support or saddle which is mounted on the machine frame and is provided with a small hole in the bottom. A stud on the machine frame engages this hole so that the support may be self-adjusting to align the supporting rolls with the drier journal. The end of each drier roll is grooved to receive a rope which also passes around a suitable number of guide rolls, one of which serves as a tension roll. Two of the driers are connected by crossed belts, and one of these is belt driven from the calender driving shaft. With this method of mounting, the rope is sufficient to drive the drier rolls; and with heavy papers such as boards, once the sheet has been threaded through the machine, the rope may be slackened and the drivers driven only by the sheet itself.—A.P.-C.

Pulp and Paper Testing

Taking of Moisture Samples from Pulp Bales, With Special Consideration as to the Drying Out of the Bale. W. Meskat. Papierfabr. 27, No. 47, 722-727 (Nov. 24, 1929).—A very comprehensive article dealing with the various methods, German, French, English and American, for taking moisture samples from a bale of pulp, and the proposal of a new method based on scientific mathematical investigation. It has been determined that a bale of pulp in storage for about 4 weeks dries out to a depth of only about 4 centimeters. A moisture sample taken from a bale of 66.2 per cent absolute moisture content, usually loses from 2 to 3 per cent moisture before being weighed.—J.F.O.

Determination of the Strength of Sulphate Pulp. Kienzl and Nagl, Frantschah Paper Mill. Papierfabr. 28, No. 4, 49-55 (Jan. 26, 1930).—From the results of research, the Lampen mill used for the determination of the strength of sulphate pulp has given excellent results. Moist pulp attains a higher Schopper Riegler, ten degrees in the first hour, quicker than dry pulp. Upon further treatment the pulps have the same value. Strong inorganic acids have a decided influence on the degree of beating. Beating in an alkaline solution has no noticeable effect.—J.F.O.

Preparation of Fiber Test Sheets. Merle B. Shaw, George W. Bicking and Leo W. Snyder. U. S. Bureau of Standards,

Washington, D. C. Paper Trade J., 90, No. 16, 60-66 (April 17, 1930); Tech. Assoc. Papers, Series 13, No. 1, 254-260 (May, 1930).—A laboratory method for making small sheets of fibers in studying the paper making quality of pulp has been developed and a suction sheet machine has been designed. The apparatus and its operation are described in detail. The method relates to the forming of the sheet of fibers on the screen and the subsequent operations of couching, pressing and drying. The finished sheet is adequate to supply specimens for each kind of test ordinarily made to evaluate the quality of paper. With the equipment and procedure described, sheets uniform in quality (formation, weight, etc.) can be made by an operator of average skill. Measurements of the physical properties showed that the different sheets made from a given sample of stock are in good agreement and that the sheets can be duplicated as desired. The personal equation is reduced to a minimum and truly comparable results can be obtained by different operators.—A.P.-C.

Measurement of Transparency in Printing Papers. Prof. E. H. Riesenfeld and Dr. T. Hamburger. Wochbl. Papierfabrikation 61, No. 5, 150 (Feb. 1, 1930).—The importance of opaqueness in papers used for printing purposes is stressed. Of the two groups of methods, the one adopted by the American Committee on Paper Testing, which consists in allowing light to fall upon the sheet, half lying on a completely reflecting and the other half lying on a completely absorbing media, is faulty. The other method which directly compares the intensity of the source of light with that coming through the paper is to be preferred. The methods are then explained in detail, with data and results given.—J.F.O.

New Gauge for Measuring the Thickness of Paper, With Adjustable Measuring Pressure. Otto Dahne, Papierfabr. 27, No. 51, 810 (Dec. 22, 1929).—To eliminate the errors in the usual thickness gauge caused by unequal pressures exerted on the paper, a new apparatus is devised which maintains a certain desired pressure.—J.F.O.

Testing of Coarse Board for the Absorption of Anthracene Oil. Korn. State Testing Laboratory, Berlin-Dahlem. Papierfabr. 27, No. 49, 765 (Dec. 8, 1929).—Observations made on the method and improvements suggested.—J.F.O.

Method of Determining Water Soluble Materials in Paper. Th. C. Bentzen. Whiting-Plover Paper Co., Stevens Point, Wis. Paper Trade J. 90, No. 22, 55 (May 29, 1930).—Redistilled water, free from ammonia, should be used for the determination, which is as follows: Weigh exactly 5 g. of air-dry paper, fold in quarter-inch width, zig-zag, cut it into one-eighth or three-sixteenths of an inch strips and place in a 400-cc. pyrex beaker. Add 200 cc. of redistilled water, bring to a boil, boil gently till about 100 cc. have been evaporated, filter into a 400-cc. tall-form pyrex beaker which has been graduated by weight of distilled water into 100-cc. volumes, and wash the extracted paper on the filter with redistilled water till the combined filtrate and washings measure 200 to 250 cc. place the beaker in a water bath, evaporate to 100 cc., cool, and make the volume to exactly 100 cc. The resultant solution, representing a 5 per cent extraction of the water-soluble material in the paper, can be used for the required quantitative and qualitative determinations.—A.P.-C.

Relationship of Ink Viscosity to Penetration in Newsprint. I. H. Andrews. Powell River Co., Powell River, B. C. Paper Trade J. 90, No. 16, 59 (April 17, 1930).—Printed sheets of newsprint were examined for oil stain, or so-called ink penetration, in order to try to determine what relationship existed between quantitiy and viscosity of ink and ink penetration. In every instance the oil of the ink eventually spread over the fibers directly under the print to the opposite side, showing as an oil stain, apparently when the film had attained a certain degree of thickness. The oil stain is accompanied by "show through" (contrast between the black print and the unprinted portion, when viewed from the opposite side of the paper). During a period of about 3 to 5 days there is the combined effect of show-through and ink penetration, after which the effect of show-through is hardly apparent and the oil stain predominates. Oil from a minimum of ink, necessary to give an even black print, may take as long as 3 days to show up as ink penetration, and then only faintly; the more ink used the sooner penetration appears, and with a 50 per cent increase in ink the penetration shows up badly in 2 to 3 hours. Owing to interference of show-through, considerable difficulty was experienced in gauging the degree of ink penetration and there was considerable variation in the results observed; but it seemed that the length of time for the penetration to reach the same degree of stain was about in direct ratio to the viscosity values of the ink. After allowing the printed news print to stand 10 days, the stains from equal volumes of inks of various viscosities were alike. With different depths of impression the rate of penetration for equal volumes of the same ink appeared to be alike, but the degree of blackness became greater as the impression increased, which suggests that less ink would be necessary, i.e., less ink penetration, to attain the same degree of blackness. In the light of the present work, assumption drawn from previous studies on the relation of the spreading power of oil to ink viscosity and the effect of temperature must be changed.—A.P.-C.

Strength With Reference to Machine Direction

By F T. Carson[1]

Paper is a structure of interlaced fibers depending for its strength in either direction upon the predominance of fibers in that direction. All the strength properties usually are, and should be, greater in the machine direction than in the cross direction. The designation of direction in connection with the tearing test is admittedly a knotty problem. Everything depends on the point of view. Our practice in this case, as in all others, is to designate the direction tested as that of the fibers which resist the rupturing stresses. A machine direction, tearing test, according to our practice, involves the tearing of the paper so that the tear proceeds across the fibers which lie in the machine direction, that is so as to rupture the machine direction fibers. It would seem illogical to speak of the machine direction tearing strength when tearing the paper so as to rupture the cross direction fibers. But in spite of "Paper Testing Methods" and of our practice in conformity thereto, I would venture to say that most people who make the tearing test designate the direction as that in which the tear proceeds, a practice which is in conformity with engineering practice as applied to the shearing strength of wood. But to make the analogy between the shearing strength of wood and the tearing strength of paper complete we should have to change our nomenclature somewhat so as to speak of the "resistance to tearing along the machine direction" instead of "machine direction tearing strength." The proposition of designating direction in connection with the tearing strength of paper is open to question. Our practice and the official definition are logically correct, but whether they are proper from the standpoint of common sense practice and custom is open to question.

I do not believe the suggested definition in terms of the plane in which the rupturing forces are applied would cover all cases, even if we admit that we are wrong on the tearing test. It would fit that case. But in the tensile test the rupturing forces are applied in the same plane for both directions.

[1] U. S. Bureau of Standards, Washington, D. C.

Wisconsin Plans Paper Science Classes

[From our regular correspondent]

Appleton, Wis., September 29, 1930.—Classes in paper and pulp science and manufacture are being organized in vocational schools in the paper making centers of Wisconsin again this fall. Evening sessions will be held for all workers who are interested in studying processes and methods, in order to improve their knowledge of their jobs or prepare for promotion. H. G. Noyes, state co-ordinator, has charge of this organization work.

Section of the

COST DEPARTMENT

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Investigating and Analyzing Distribution

By L. G. Cattermole[1]

(Concluded from last week.)

Office

The office organization and methods should be made the object of investigation in the early part of the study. The members of the executive sales staff—their duties and responsibilities, their qualifications, and the extent of their authority—must be given more than passing consideration, so that each person will be given the fullest opportunity for the expenditure of individual initiative, yet tieing their ability into a well coordinated plan. The statistical and routine divisions must be examined to see that they are not performing unnecessary work, that the results of their efforts are being utilized to the fullest possible extent, and that they are performing all necessary work which will be of assistance in improving the company's sales position. The rapid handling of incoming orders and replies to correspondence are two places which are often weak. Many times information which would be extremely helpful to the sales department is collected, but it is either not collated or not utilized. A large manufacturer of electrical instruments had a group of twelve men and girls collecting valuable information for the sales manager and the president of the organization. Unfortunately, the information was not presented in such a form that it could be readily interpreted, and in the stress of more pressing duties, neither could find sufficient time to dig out some fundamental facts relative to certain territories. These facts, when shown to the executives mentioned, were the means of causing a radical change in the sales plans for the ensuing year.

Field

One of the hardest tasks which any sales manager faces, is that of securing good salesmen. *Where* they are to be obtained and *how* they are to be obtained are subservient to the qualifications needed. One of the most prominent employment counsellors in the United States makes the statement that the majority of requests for salesmen show a woeful lack of specific and pertinent requirements. The most successful sales managers generally use a graded table of requirements by which they measure the applicant's fitness for the job. The personal impression of the sales manager plus a few well-chosen questions, is seldom sufficient to determine the eligibility of a prospective recruit.

After the list of requirements has been compiled, it is more readily apparent *where* it is necessary to go to secure the men wanted, and *how* it will be possible to make the initial contact. The investigator must learn how men have been obtained for the sales force in the past, and must be in a position to make constructive recommendations for improvement in these methods, if improvement is to be attained.

After the salesmen have been obtained, it is necessary that they receive some form of training, as a rule. Men without sales experience must often undergo an intensive and extensive period of training and education before they are properly qualified to go out on the road and represent their company.

Experienced salesmen, when they can be used advantageously, do not generally need to go thru such an extended training, but both inexperienced and experienced salesmen need a thorough knowledge of the products and their uses and applications; how to meet objections; a general understanding of the history and policies of their house; the various members of the organization and their place in the scheme of things, handling of records and correspondence in the field and office; how the customer (if he is not the ultimate consumer) should be helped to sell the goods; and what is expected of the salesmen, as well as what the company's policies relating to advancement and remuneration may be. The size and type of the organization and the nature of the products determine whether class instruction, personal instruction or other training methods shall be used.

A sales manual is generally used to supplement other forms of training, and may be found helpful as a reference work of the products and the company, and should cover the high points of the information imparted during the training period. It should be inspirational in tone. Many salesmen, even among the older and widely experienced group, refer to their sales manual as their "work bible," and state that they would not be without it.

The trained investigator can often suggest many improvements, which may be made in the task of properly training the salesmen.

Territories and Quotas

The assignment of territories is dependent upon many factors, foremost of which are the methods, time and cost of transportation for the salesman, number of prospects, and the present and potential volume of sales. A salesman covering the southern states, because of the transportation facilities and more sparse population, cannot usually be expected to show the same results in volume of sales as a salesman in New England, for instance. The "cut and try" method has given way to the very comprehensive study of the railroad and bus transportation facilities and time tables, automobile roads, distances between towns, etc. The result is that a salesman under the

[1] Management Counsel, Cooley & Marvin, Boston, Mass.

newer methods keeps himself productive a larger part of the time, and his average sales per prospect and customer is much higher.

A study of the potential business to be obtained in each territory, and the time necessary on the part of the salesman to obtain it, shows whether or not it is desirable to make some adjustments in the territorial assignment. Reasonable quotas of attainment for each individual salesman are then set up, and the base quotas are totalled to make up the total sales budget. The sales budget serves as the basic data on which the entire future operating program is built, covering financial, purchasing, production and advertising requirements.

It should be remembered that sales budgets and quotas based on past performance are never as effective as those based on market study and analysis. The same thing is true of sales budgets based on "judgment" estimates of the sales manager or the field salesmen. Past records and estimates must, however, be given some consideration in the preparation of quotas, as they may have some influence in modifying or extending the final result. Whether or not the estimates of field representatives has a direct bearing upon the establishment of quotas, more hearty co-operation with them is secured when they are taken into the confidence of those members responsible for setting the sales tasks.

It has been found that the territorial assignment of salesmen, their routing, and the setting up of reasonable standards of performance in the form of quotas are factors of the utmost importance to which the investigator must devote a considerable portion of his time. They are the factors upon which the results of the business are largely predicated.

Directing and Supervising the Salesmen

Control of salesmen is founded mainly upon the flow of orders and directions to the salesmen and upon the analysis of sales and reports received from the salesmen. It is necessary to determine what form of supervision should be used to secure the maximum effectuality of the field organization, the type and kind of call reports to be used for the greatest utility, and to lay out a plan for inspirational bulletins and letters, reports of progress, sales contents, trips to the various territories by the sales manager or supervisors, and sales conference meetings.

The question of supervision is determined, first, by how much is necessary, and second, how much expense is involved. Certain types of salesmen and certain classes of products need much more supervision than others. A large sales force often requires more time than the sales manager may devote to them, even though they may be of the highest type. Under these circumstances it is usually desirable to develop field managers who will relieve the sales manager of many of the detailed tasks in connection with supervision, and enable him to devote more of his attention to improvement in methods and policies, to devote more time to creative endeavor and constructive plans for the future. Too much routine work for the sales manager often sounds the death-knell of increased and more profitable business.

High grade salesmen generally require much less supervision than others. However, if the product is of a specialty nature, more supervision is required. Highly developed local sales forces require less supervision per salesman than groups whose members are widely scattered. In any case it is essential in most cases for the manager or supervisor to make at least one or two trips a year out into his territory with each individual salesman.

Plans for improved methods, changes in policies and procedure are generally announced at sales conferences. These must be followed up with instructions, bulletins and letters emphasizing these improvements or changes, and care must be exercised to assure the management that the salesmen are adhering to them. Sometimes it generally requires a terriffic charge of powder to blast a salesman out of an undesirable rut, but usually the best results are secured by a little gentle urging. As a class, salesmen respond very readily to encouragement and inspirational personal letters. Reports of progress keep the salesman informed of what is transpiring at the home office and in other territories. The salesman does not feel that he has lost contact with headquarters. Every member of an organization who is interested in its progress likes to know what is "going on."

Sales contests often serve to introduce the competitive spirit into the various salesmen's activities. They are not the answer to increased sales in nearly so many instances as the executives are led to believe. If there is the slightest suspicion of unfairness, the net result will be "hard feelings" on the part of the men. When conditions are fairly adapted to sales contests, however, they should tend to improve the "esprit-de-corps."

Sales conferences and conventions provide the opportunity for the management and the salesmen to get togther at reasonably frequent intervals; establish a more personal and friendly contact with each other and learn more about each other; for the salesmen to see what developments are taking place in the factory along the line of improved processes, products, etc; discuss various phases of product improvements, new products, prices, terms, competition, experiences in overcoming or forestalling objections, new plans and policies; and to foster a spirit of teamwork and enthusiasm. Sales conferences should never be handled on a "hit-or-miss" method, but the program should be very carefully planned and worked out, and controlled. Controversial discussions should not be permitted, and the meetings should be opened and closed promptly. The entire spirit of the meetings should be friendly.

Call reports are needed by the sales manager to obtain all the facts possible relative to each call or interview, to learn what is transpiring in each territory and to enable him to assist the salesmen in correcting their faults. Call reports enable another salesman to carry on the progress made with a prospect or customer if the previous salesman has left the employ of the company, has been moved to another territory or is incapacitated. They serve to furnish a fund of invaluable information for market analysis and other purposes. Many salesmen find that the call reports are helpful to themselves personally, as a reviewing of their call shows them many places where their technique may be improved. A duplicate copy for the salesmen's private file is often helpful to the salesman in making subsequent calls, as it shows him the customer's status at the time of the previous call.

In many organizations it is not possible for the sales manager to scan every report made by every salesman. Inasmuch as it is necessary to check up on the salesmen's performance at regular and frequent intervals, a periodical summary report of performance is prepared for the use of the sales manager from the call reports, which gives a more general picture of each salesman's progress. Detailed analysis may be made by reference to the call reports from any individual salesman, group, or territory.

Call reports—or any other reports from the salesmen must not require too much clerical work on the part of the salesmen, nor details or information that will serve no practical need. Conversely, because of their position in the field in contact with prospects and customers, they are in a position to furnish a great deal of useful information, and should be required to keep the home office informed of all developments, and all details that may be used in strengthening the company's sales position. In studying the sales problem, therefore, the flow of information from the field to the office, and from the office to the field must be given a great deal of attention, and constructive plans developed which will permit the entire organization to

be more productive, thru the collection and collation of as many essential facts as possible.

Methods of Compensation

Methods of compensating salesmen have received serious consideration by many business men, who have attempted to suitably reward the salesmen for results secured. This question is one of the most important which the sales department of any organization must face. There are many methods of compensation in vogue, varying from the straight salary or commission plan, up to very intricate and complicated point systems, which reward the men for volume and profits secured, new accounts opened, number of calls made, etc.

Each individual sales force generally requires an individual study of its conditions, and the devising and application of a method of compensation which suits its particular needs. The desired objective or objectives should be determined, and the plan designed to reward the salesmen for the accomplishment of the desired objective. The plan should be just as simple as it is possible to make it, and it should be easily remembered. A plan which requires a formula or a curve as a means of determining earnings usually is not very effective. A salesman generally likes to compute his earnings from day to day. As a rule he is neither an engineer nor an economist. If he is being asked to accomplish certain results and is being paid according to the results secured, then it must be made easy for him to determine his earnings.

There are, of course, other rewards than immediate earnings which must be considered, such for instance as promotion, choice of territories, prizes of various kinds, vacation trips, etc. These generally add zest and enthusiasm to a particular campaign, but as a rule, they are best used to supplement a practical, simple and effective dollars and cents incentive. The investigator should examine the compensation plan very carefully and be in a position to recommend improvements or changes which will secure the desired results.

Advertising

The subject of advertising is such an extensive one that it can hardly be touched upon in this article. However, it is such an important item in any sales program that the investigator must, of necessity, examine past advertising programs and their costs and results.

An advertising program is usually a task for the advertising agency. Those concerns which attempt to handle their own advertising programs, layout, copy, art work, etc. either have a man who has had excellent agency experience,—or else they do not usually secure the results to which their expenditures entitle them.

On the other hand, some advertising agencies do not seem to realize that increased profitable sales are as necessary a result from advertising, as to secure attention and create interest and desire for the products. Advertising agencies deserve no credit for increased *unprofitable* sales which they have created.

It is necessary, therefore, to examine what type and kind of advertising has been used in the past, what its cost has been, and what were the results.

There are products which require one form of advertising only, to the exclusion of all else. There are other products which require a co-ordination of all forms of advertising. In any event, the nature of the product and its market must determine the complete advertising program commensurate with what the firm can afford, and in accord with the results which it requires.

It often happens that test campaigns must be inaugurated prior to the development of a complete and extensive advertising program. Such campaigns show the desirability of localizing advertising and sales effort in the markets which apparently hold the greatest potentialities for profits. Test campaigns will show the effectuality, as a rule, of the various forms of advertising. Coupled with past records and experience, it should be possible to determine where each dollar expended will yield maximum results; and where it is necessary to follow a restricted plan of advertising. The manufacturer is thus assured that the most profitable sections will be worked first. Many products, of course, because of their nature and the production facilities behind them, must have nation-wide, and in some cases world wide distribution, and in most cases the problem is one of determining the types and kinds of advertising which are most suitable.

It is impossible to lay down a hard and fast rule for the advertising appropriation, this being a matter of past appropriations, new markets and results desired, competition, status of the firm and its product. Most advertising programs call for inadequate expenditures. On the other hand, too large an expenditure with an expectation of immediate results is wasteful, and at times destroys the faith of the advertiser in the efficacy of extensive campaigns. Probably the best plan, when starting to advertise, is to do so on a small scale, but persistently and consistently, until the business has grown sufficiently to permit more extensive advertising. Sometimes the appropriation for advertising, should be based on the amount per unit of sale, sometimes it should be based on the previous years sales or on anticipated sales, sometimes it should be based on the number of prospects whom it is desired to approach, sometimes on previous years profits and sometimes on the cost per sale. Each one of these plans has its advantages and its disadvantages. The one plan which seems to have the most merit is to base the appropriation on the actual amount of advertising which is needed. The investigator must determine whether the cost has been inadequate or excessive by comparison with results secured and desired, and what the future policy should be in this respect.

Finally, the results of the complete investigation must be tied together and deductions therefrom be used as a foundation for a complete sales development program.

A sales survey, such as described, is quite extensive, but it must be comprehensive enough to show the problem in all its ramifications, and the co-ordinated procedure which must be followed to attain the desired results. Any firm which is willing to undertake such a complete investigation is almost certain to benefit materially in not only fortifying its position, but in extending the scope of its profitable operations.

Thomas J. Burke Gets Certificate

The annual meeting of the American Trade Association Executives was held last week at Niagara Falls, Ontario, concluding with a large banquet at the Clifton Hotel. A pleasing ceremony took place during this banquet when John N. Van der Vries, secretary of the National Institute of Trade Association and Commercial Organization Executives presented Thomas J. Burke, Director, Cost Department, American Paper and Pulp Association and John G. Williams, Secretary, National Association of Taxicab Owners with the Institute's Certificate.

Mr. Burke is the first trade association executive in the pulp and paper industry to receive this certificate, which requires attendance at Northwestern University for two weeks each year, for three years, and includes a course of reading in fundamental subjects relating to trade association work.

Ahdawagam Construction Progressing

The foundation and walls are practically completed for the new folding carton plant of the Ahdawagam Paper Products Company, Wisconsin Rapids, Wis. The building is 110 by 200 feet in size and is of reinforced concrete, with red face brick. Color presses, cutting, creasing, gluing and folding machines will be installed. A capacity has been provided for 100 employes, although only a small number will be engaged at the start. James T. Mader, former production manager of the Wisconsin Carton Company and previously affiliated with other carton concerns, will have charge of operations.

Program for National Paper Trade Meeting

The following is the advance program for the annual fall meeting of the National Paper Trade Association, Stevens Hotel, Chicago, October 6-8:

MONDAY, OCTOBER 6

9:30 A.M. Survey and Credit Committee, Fine paper Division—Room 6
Survey Committee, Wrapping Paper Division—Room 1
Kraft Committee & Council—Room 3
Gummed Tape Committee—Room 5

11:00 A.M. Tissue Committee—Room 7

2:30 P.M. Executive Committee, Wrapping Paper Division—Room 4
Vice-President Blackman presiding
Remarks by Vice-President Blackman.
Minutes of previous meeting.
Discussion of Committee reports:
Bag Committee, L. L. Hanlon, Chairman;
Kraft Committee, S. L. Wellhouse, Chairman;
Twine Committee, G. W. T. Skinner, Chairman;
Tissue Committee, A. J. Corning, Chairman;
Gummed Tape Committee, L. J. Marshall, Chairman;
Survey Committee, C. A. Spaulding, Chairman.
Reports from local associations by their representatives.
Unfinished Business.
New Business.

2:30 P.M. Executive and Administrative Committees, Fine Paper Division—Room 1
Vice-President Miller presiding.
Remarks by President Warner.
Remarks by Vice-President Miller.
Minutes of previous meeting.
Report of Survey and Credit Committee, A. W. Leslie, Chairman.
Report on Postal Matters, Geo. W. Ward.
Discussion of current activities, F. E. Floyd, Executive Secretary.
Reports from local associations by their representatives.
Unfinished Business.
New Business.

2:30 P.M. Twine Committee—Room 2

4:00 P.M. Bag Committee—Room 6

5:00 P.M. Trade Relations Committee, Wrapping Paper Division—Room 7
Composed of Chairmen of various committees.

8:00 P.M. Board of Directors—Room 1

TUESDAY, OCTOBER 7

9:30 A.M. Cost Accounting Meeting—North Ball Room—President K. S. Warner presiding.

This meeting is consequent to the very interesting meeting on Cost Accounting held at the annual convention last February. There will be a full presentation and discussion of the activities and program of the Fine and Wrapping Paper Survey Committees under Chairmen Spaulding and Leslie. The floor will be open for questions or presentation of any pertinent problems of the Paper merchant.

A representative of the premier accounting firm of Ernst & Ernst, who are now operating with us, will address the meeting on the advantages of Uniform Cost Accounting and its practical operation. Every one present will receive a most unique and useful Range Finder which has been devised for application to the Paper business.

2:30 P.M. Fine Paper Division—North Ball Room—Vice-President J. F. Miller presiding.

Comparative reports, information regarding current activities and proposed new activities, together with good addresses by men who know their subjects, will make this meeting highly interesting to every Fine Paper merchant.

WEDNESDAY, OCTOBER 8

9:30 A.M. Wrapping Paper Division—North Ball Room—Vice-President A. W. Blackman presiding.

Market conditions and problems affecting the distribution of Wrapping Paper lines will be discussed at this meeting and the information to be brought out will be of very great value to every Wrapping Paper merchant. Active Committees will report on the most important leading Wrapping Paper lines, including Kraft, Bags, Twine, Gummed Tape, Tissue, etc.

Comparative reports will be presented by the Survey Committee and the floor will be open for discussion of special merchandising problems. A speaker of National prominence will discuss the present business situation and the outlook in distribution.

Changes in Zellerbach Paper Co. Personnel

SAN FRANCISCO, Cal., September 27, 1930.—H. L. Zellerbach, president of the Zellerbach Paper Company, has announced the following changes in personnel of the company:

Robert C. Clark, for many years manager of the Fresno Division of the company, has been promoted to an executive sales position in the headquarters of the company in San Francisco.

Alvin R. Kuhn, formerly sales manager of the Seattle Division, has been promoted to manager of the Fresno Division, succeeding Mr. Clark.

A. W. Akers was appointed manager of the Seattle Division. Mr. Akers was formerly operating manager of the San Francisco Division and until recently in charge of all purchasing for the many mills in the vicinity of Seattle, affiliated or associated with the name of the Crown Zellerbach Corporation.

Philo K. Holland has been made operating manager of the San Jose Division.

W. R. McWaters, Jr., of the Portland Division was made manager of the operating department of the San Francisco Division, succeeding Mr. Holland.

Graham Whitehurst, recently on the headquarters operating department staff, was chosen to replace Mr. McWaters in the Portland Division.

These appointments were all effected during September and are considered as an expression, on the part of the executives of the Zellerbach Paper Company, of the confidence placed in the employees promoted and as tokens of appreciation for their loyalty and service.

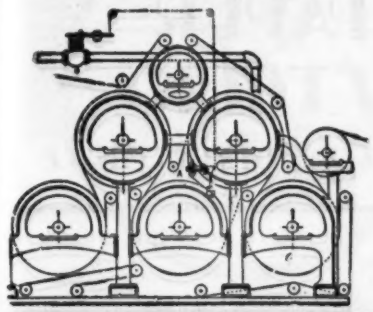
Gears & Forgings Concentrates Heavy Gear Activities

Gears & Forgings, Inc. recently announced the concentration of all its heavy gear and special machinery production at its Ford City plant. The merging of the Ford City and Pittsburgh plants is another step in the interest of service and economies to their customers. The Ford City plant now offers unusual facilities for the manufacture of heavy gears, special machinery, steel mill equipment, strip coilers, sheet mill drives, bridge operating equipment, etc.

Complete facilities for maintenance gear work are in operation at all plants, Chicago, Cleveland, and Ford City, thus making possible excellent service to all customers.

For the convenience of customers in the Pittsburgh district, the Pittsburgh branch office will remain at its old location, 2818 Smallman street.

The Pickles Drying Regulator



WE ARE SAFE IN OUR PROPOSITION

YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**

"EASILY THE BEST IN THE OUTFIT"

In the Champion Mill of St. Regis Paper Co., at Carthage, N. Y., there are four Dayton High Speed Beaters like the one shown here. One of the *several ways they are saving money* is by running with more than 20% less power than other makes of beaters beating craft stock in the same mill. The statement above comes from the mill superintendent, who knows what beaters ought to do. *What Dayton claims—Dayton proves! Let's see what we can claim for you.*

THE DAYTON BEATER & HOIST CO., DAYTON, O.

Eastern Rep.
Mansfield, Bolton & Kent
501 Fifth Ave., New York

Western Rep.
F. H. Godfrey
415 Lenora St., Seattle, Wash.

DAYTON
High Speed Beaters

SOLVAY
PRODUCTS

SODA ASH
CAUSTIC SODA

Liquid Chlorine
Contract or Spot Delivery
In tank cars and multiple unit cars.
Write for Prices

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
61 Broadway New York
Boston Syracuse Chicago Pittsburgh Cincinnati Kansas City St. Louis Indianapolis Detroit Cleveland Philadelphia Atlanta

*Trade Mark Reg. U. S. Pat. Off.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company

PROVIDENCE, R. I.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING SEPTEMBER 27, 1930

SUMMARY

Cigarette paper	745 cs.
Wall paper	3 bls., 44 cs.
Paper hangings	7 bls., 5 cs.
News print	1036 rolls
Printing paper	4 bls., 41 cs.
Wrapping paper	20 cs.
Packing paper	7 cs.
Decalcomania paper	40 cs.
Filter paper	12 cs.
Drawing paper	7 cs.
Litho paper	15 cs.
Baryta coated paper	75 cs.
Surface coated paper	44 cs.
Metal covered paper	3 cs.
Coated paper	19 cs.
Colored paper	22 cs.
Writing paper	21 cs.
Index paper	5 rolls
Stencil paper	1 cs.
Gallic paper	1 cs.
Parchment paper	21 bls.
Raw paper	42 cs.
Caoutchouc paper	6 cs.
Card board	220 cs.
Envelopes	6 cs.
Miscellaneous paper	25 cs.

CIGARETTE PAPER

De Manduit Paper Corp., MacKeesport, Havre, 465 cs.
H. H. Straus, MacKeesport, Havre, 286 cs.

WALL PAPER

Guaranty Trust Co., New York, Hamburg, 6 cs.
Phoenix Shipping Co., New York, Hamburg, 3 bls.
——, Volendam, Rotterdam, 36 cs.
A. L. Diament & Co., Homeric, Southampton, 1 cs.
Thomas & Pierson, Aquitania, Southampton, 1 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnewaska, London, 3 cs., 7 bls.
R. F. Downing & Co., France, Havre, 4 cs.
Whiting & Patterson Co., Inc., Aquitania, Southampton, 1 cs., 2 bls.

NEWS PRINT

Jay Madden Corp., Karlsruhe, Bremen, 291 rolls; Dresden, Bremen, 667 rolls.
——, United States, Oslo, 78 rolls.

PRINTING PAPER

International F'd'g Co., J. Jadot, Antwerp, 7 cs.
J. Henschel & Co., New York, Hamburg, 5 cs.
Hensel Bruckman & Lornacher, New York, Hamburg, 4 cs.
C. Steiner, Dresden, Bremen, 25 cs.
Marr Duplicator Co., California, Glasgow, 4 bls.

WRAPPING PAPER

Sylvania Industrial Corp., Pennland, Antwerp, 20 cs.

PACKING PAPER

Gevaert Co. of America, Pennland, Antwerp, 2 cs.
Houbigant Inc., France, Havre, 5 cs.

DECALCOMANIA PAPER

C. W. Sellers, New York, Hamburg, 11 cs.; Bremen, Bremen, 2 cs.
Phoenix Shipping Co., Bremen, Bremen, 5 cs.
B. F. Drakenfeld & Co., Cedric, Liverpool, 18 cs (duplex); 4 cs. (simplex).

FILTER PAPER

H. Reeve Angel & Co., Inc., Minnewaska, London, 12 cs.

DRAWING PAPER

Keuffel & Esser Co., Caronia, London, 1 cs.
Freedman & Slater, Karlsruhe, Bremen, 1 cs.
H. Reeve Angel & Co., Inc., Minnewaska, London, 5 cs.

LITHO PAPER

B. Meiners, Triumph, Hong Kong, 10 cs.
B. C. Ritchie & Co., Inc., Triumph, Hong Kong, 5 cs.

BARYTA COATED PAPER

Globe Shipping Co., Karlsruhe, Bremen, 75 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Pennland, Antwerp, 44 cs.

METAL COVERED PAPER

F. C. Gerlach, Dresden, Bremen, 3 cs.

COATED PAPER

Bank of America, New York, Hamburg, 19 cs.

COLORED PAPER

Norwood & Co., New York, Hamburg, 4 cs.
Whiting & Patterson, Co., Inc., New York, Bremen, 1 cs.
Freedman & Slater, Karlsruhe, Bremen, 1 cs.
S. Gilbert, Dresden, Bremen, 11 cs.
Borden Riley Paper Co., Pennland, Antwerp, 5 cs.

WRITING PAPER

Jas. A. Hearn & Son, Pennland, Antwerp, 4 cs.
Globe Shipping Co., France, Havre, 9 cs.
B. Altman & Co., Homeric, Southampton, 7 cs.
American Express Co., Pipestone County, Havre, 1 cs.

INDEX PAPER

Pennsylvania Railroad Co., J. Jadot, Antwerp, 5 rolls.

STENCIL PAPER

W. L. Newberry, American Trader, London, 1 cs.

GALLIC PAPER

Keuffel & Esser Co., Caronia, London, 1 cs.

PARCHMENT PAPER

Walker Goulard Plehn Co., New York, Hamburg, 21 bls.

RAW PAPER

American Express Co., New York, Hamburg, 42 cs.

CAOUTCHOUC PAPER

American Express Co., New York, Hamburg, 6 cs.

CARD BOARD

American Express Co., New York, Hamburg, 220 cs.

ENVELOPES

——, Dresden, Bremen, 6 cs.

MISCELLANEOUS PAPER

——, Dresden, Bremen, 4 cs.
Steiner Paper Corp., Volendam, Rotterdam, 12 cs.
Globe Shipping Co., Volendam, Rotterdam, 3 cs.
F. J. Markwalter, France, Havre, 1 cs.
Coenca Morrison Co., France, Havre, 1 cs.
De Manduit Paper Corp., France, Havre, 4 cs.

RAGS, BAGGING, ETC.

Royal Manfg. Co., J. Jadot, Antwerp, 10 bls. cotton waste.
S. Birkenstein & Son, Caronia, London, 143 bls. paper stock.
Darmstadt Scott & Courtney, Innoko, Antwerp, 59 bls. bagging.
International Trust Co., Volendam, Rotterdam, 132 bls. bagging.
R. F. Downing & Co., Volendam, Rotterdam, 135 bls. bagging; California, Glasgow, 67 bls. bagging; 14 bls. rags.
Baring Bros. & Co., California, Glasgow, 65 bls. paper stock.
E. J. Keller Co., Inc., Pipestone County, ——, 50 bls. rags.
Castle & Overton, Inc. Pipestone County, Havre, 77 bls. bagging.
Guaranty Trust Co., Pipestone County, Havre, 26 bls. bagging.
International Trust Co., Pipestone County, Havre, 20 bls. new cuttings.
First Nat'l Bank of Boston, Gravenstein, Antwerp, 60 bls. cotton waste.
E. J. Keller Co., Inc., Gravenstein, ——, 90 bls. rags; Sacandaga, ——, 5 bls. rags; Hannover, ——, 80 bls. bagging.
V. Galaup, MacKeesport, Dunkirk, 60 bls. rags.
Irving Trust Co., MacKeesport, Dunkirk, 155 bls. flax waste.
Darmstadt Scott & Courtney, MacKeesport, Havre, 120 bls. rags.
Banco Com'l Italiane Trust Co., Ida, Venice, 125 bls. bagging; Isarco, Genoa, 101 bls. bagging.

OLD ROPE

Brown Bros. & Co., United States, Copenhagen, 148 coils, 68 bls.

WOOD PULP

Castle & Overton, Inc., New York, Hamburg, 2758 bls. wood pulp, 411 tons.
E. M. Sergeant & Co., United States, Oslo, 150 bls. chemical pulp, 25 tons.
Price & Pierce, Ltd., C. of Fairbury, Wallvik, 1350 bls. sulphite, 225 tons.
Pagel Horton & Co., Inc., C. of Fairbury, Hornefors, 1200 bls. sulphite, 200 tons; 300 bls. sulphate, 50 tons.
Castle & Overton, Inc., Sacandaga, Rotterdam, 170 bls. wood pulp, 27 tons.

PULPWOOD

Chase National Bank, Lackenby, Archangel, 3892 cords.
——, Skramstad, Archangel, 2918 cords.
Polaris Shipping Co., Edenhurst, St. Peters, C. B., 1191 cords.

WOOD FLOUR

State Chemical Co., Volendam, Rotterdam, 400 bags.

WOOD PULP BOARDS

Lagerloef Trading Co., Ragnhildsolhm, Kotka, 378 rolls.

PHILADELPHIA IMPORTS

WEEK ENDING SEPTEMBER 27, 1930

Lagerloef Trading Co., Ragnhildsholm, Helsingfors, 10,711 bls. sulphite; 519 bls. sulphate; Ragnhildsholm, Kota, 715 bls. sulphite; 127 bls. sulphate; 649 rolls wood pulp boards; 177 bls. wood pulp boards.
Arkus, Inc., Innoko, Antwerp, 80 bls. rags.
——, Innoko, Antwerp, 22 bls. rags.
Castle & Overton, Inc., Innoko, Antwerp, 50 bls. rags; Innoko, Rotterdam, 130 bls. rags.
G. W. Miller & Co., Innoko, Rotterdam, 52 coils old rope.
E. J. Keller Co., Inc., Innoko, ——, 98 bls. rags.
Price & Pierce, Ltd., C. of Fairbury, Wallvik, 3300 bls. sulphite, 550 tons.
Chase National Bank, C. of Fairury, Wallvik, 625 lbs. sulphate, 127 tons.
——, C. of Fairbury, Hernosand, 1250 bls. mechanical pulp, 250 tons.
——, C. of Fairbury, Hernosand, 450 bls. sulphite, 75 tons.
J. A. Steer & Co., Sacandaga, Rotterdam, 106 bls. rags.

NEW ORLEANS IMPORTS

WEEK ENDING SEPTEMBER 27, 1930

Canal Bank & Trust Co., Ida, Trieste, 39 bls. rags.

BOSTON IMPORTS

WEEK ENDING SEPTEMBER 27, 1930

D. O'Donoghue & Son, Innoko, Antwerp, 2 bls. rags.
Brown Bros. & Co., Innoko, Rotterdam, 72 coils old rope.
H. P. Lambert & Co., Innoko, Rotterdam, 46 bls. rags.
Hollingsworth Vose Co., Innoko, Rotterdam, 83 bls. bagging.
G. M. Graves & Co., California, Glasgow, 418 bls. rags.

(Continued on page 72)

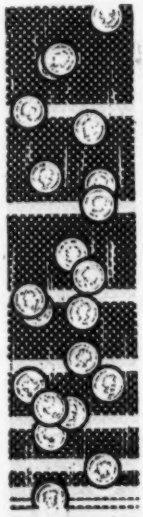
LAND O'LAKES CASEIN

High quality Casein made under strict laboratory control. Excellent solubility. Satisfactory viscosity. Write for sample and quotations.

LAND O' LAKES CREAMERIES, INC., MINNEAPOLIS, MINN.
New York City - Chicago - Boston - Philadelphia - Pittsburgh - Syracuse

BETTER PULP

FROM YOUR PRESENT DIGESTERS



You're *not* getting your share of high grade pulp from your digesters ... *unless you're operating with the Chemipulp Process!* A bold statement ... but substantiated by actual results.

The Chemipulp Process is giving yields as high as 50% due to better and quicker penetration of hot acid, resulting in stronger, longer fibered pulp. It reduces the cooking cycle 2½ hours, increasing digester yield proportionately. It cuts sulphur, steam, fuel and lime consumption tremendously.

The Chemipulp Process introduces the acid into the digesters under high initial temperature and pressure, using the heat and pressure generated during cooking to increase digester efficiency. It is the only practical utilization of a principle highly endorsed by sulphite mill authorities and is broadly covered by patents in the United States and Canada.

The complete story means increased profit for you. Write or wire for full information, with facts and figures.

CHEMIPULP PROCESS, INC.

CHEMICAL PULP MILL ENGINEERS

WOOLWORTH BLDG.
Pacific Coast Office, 1017 White Bldg., Seattle, Wash.

WATERTOWN, N. Y.
Canadian Agency, 319 Castle Bldg., Montreal, Que.

Water Tube Boilers for Every Service

BOILERS of high quality for central stations and industrial plants of all sizes, and for utilization of waste heat from kilns and furnaces. Steel construction only. Straight tube and bent tube types. Noted for long life and economy of operation.

Engineering service available—wire or write.

EDGE MOOR IRON COMPANY Edge Moor, Delaware

EDGE MOOR Water Tube BOILERS

STRAIGHT AND BENT TUBE TYPES—WATER WALLS—AIR PREHEATERS

SAVE YOUR CORES & Metal Tips

THE USE OF OUR

PAPER CORE METAL TIP REMOVER AND RECONDITIONER

Eliminates Waste — Effects Large Savings — Simple to Operate—Cores can be shortened to small fraction of inch without injury to Core or Metal Tip. Write for Descriptive Folder.

CORNER BROOK FOUNDRY and MACHINE CO.
BATH — MAINE

Imports of Paper and Paper Stock

(Continued from page 70)

V. Galaup, Pipetone County, Dunkirk, 48 bls. rags.
Jordan Marsh & Co., Pipestone County, Havre, 7 cs. writing paper.
American Express Co., Pipestone County, Havre, 6 cs. paper.
International Trust Co., Pipestone County, Havre, 128 bls. bagging.
Brown Bros. & Co., Pipestone County, Havre, 113 coils old rope.
Castle & Overton, Inc., Pipestone County, Havre, 45 bls. rags.
Hollingsworth Vose Co., Pipestone County, Havre, 9 bls. bagging.
First National Bank of Boston, Pipestone County, Havre, 50 bls. bagging.
Guaranty Trust Co., Pipestone County, Havre, 35 bls. rags.
International Trust Co., Sacandaga, Rotterdam, 47 bls. rags.
Bulkley Dunton & Co., Noorderdyk, ——, 124 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING SEPTEMBER 27, 1930

Lagerloef Trading Co., Ragnhildsholm, Viborg, 712 rolls wood pulp boards; 680 bls. sulphate, 10,362 bls. sulphite; Ragnhildsholm, Kota, 620 bls. sulphite; 129 rolls wood pulp boards.
Virginia Paper Co., Inc., Ragnhildsholm, Kota, 60 rolls, 158 bls. news print.
Old Dominion Paper Co., Inc., Ragnhildsholm, Kota, 40 rolls news print.
W. M. Stone & Co., Ragnhildsholm, Kota, 261 rolls news print.
Chase National Bank, Sacandaga, Rotterdam, 148 bls. bagging.
Irving Trust Co., Sacandaga, Rotterdam, 238 bls. bagging.
Darmstadt Scott & Courtney, Sacandaga, Rotterdam, 50 bls. bagging.
E. J. Keller Co., Inc., West Eldara, ——, 68 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING SEPTEMBER 27, 1930

——, C. of Fairbury, Stockholm, 4640 bls. sulphite, 580 tons.
Irving Trust Co. C. of Fairbury, Helsingfors, 300 bls. wood pulp.
M. Gottesman & Co., Inc., C. of Fairbury, Helsingfors, 614 bls. wood pulp.
Bulkley, Dunton & Co., C. of Fairbury, 1250 bls. sulphite, 250 tons.
Price & Pierce, Ltd., C. of Fairbury, Wallvik, 5610 bls. sulphite, 935 tons; 6390 bls. sulphate, 1065 tons.
Pagel, Horton & Co., Inc., C. of Fairbury, Hornefors, 8250 bls. sulphite, 1375 tons.
J. Anderson & Co., C. of Fairbury, Hernosand, 1620 bls. sulphate, 310 tons; 300 bls. sulphite, 50 tons.
Pagel, Horton & Co., Inc., C. of Fairbury, Hernosand, 600 bls. sulphite, 100 tons.
Castle & Overton, Inc., Sacandaga, Rotterdam, 340 bls. wood pulp, 55 tons.
Congoleum Nairn Co., MacKeesport, Dunkirk, 507 bls. rags; 36 bls. bagging.
S. Shapiro & Co., MacKeesport, Dunkirk, 100 bls. rags.
W. Steck & Co., MacKeesport, Dunkirk, 75 bls. flax waste.
National City Bank, MacKeesport, Havre, 1058 bls. rags.
Chase National Bank, MacKeesport, Havre, 60 cs. cigarette paper.
F. R. Lazarus, MacKeesport, Havre, 1 cs writing paper.

Flambeau to Appeal Water Power Decision

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 30, 1930.—An appeal to the courts will be taken in the decision announced last week by the Wisconsin Railroad Commission refusing to grant an adequate appraisal of the value of power rights to the Flambeau Power Company, the utility which supplies power to the Flambeau Paper Company. The former is controlled by the Byllesby interests and they will contest the decision. The company had made application to erect a large new dam on the Flambeau River, and were given a very meager valuation under the state recapture law, as compared to their appraisal of the worth of the power in thirty years.

In the commission's decision, that body refused to recognize a value in the potential energy of falling water as a factor in revaluation for recapture by the state of water powers. The statement is made that the appeal to the Dane county circuit court will be served within a few days, and the case will be carried to the state supreme court and the United States supreme court. The decisions will be awaited with interest by water power owners in many parts of the country where similar recapture laws are in force.

William Jarratt Passes On

Word has just come of the death of Paper Mill Superintendent William Jarratt, of the Bathurst Power and Paper Company, at Bathurst, N. B., September 14, from heart trouble. William Jarratt was born in Maidstone, Kent County, England, in 1876. At the age of thirteen his family moved to Holyoke, Mass., where his father was employed in the paper business for several years. William Jarratt was the fourth generation of Jarratts who have been paper makers. Ten years of his life he spent at the Laurentide Mill at Grand Mere as boss machine tender and eleven years as night superintendent for Price Brothers. For the past eight years he was paper mill superintendent for the Bathurst Power and Paper Company at Bathurst.

Schroon River Co. Resumes Operations

WARRENSBURG, N. Y., September 29, 1930.—The Schroon River Pulp and Paper Company has resumed operations after being shut down virtually all summer and the orders now on hand insure full time operations for the remainder of the year at least. During the period the making of paper was stopped many orders were filled from the stock on hand and the resumption of operations became necessary when the warehouses were emptied. All former workers have been recalled to their old positions.

Paper Mills Protest Excessive Assessments

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., September 20, 1930—Prominent paper mill concerns of this city have filed protests with the city authorities claiming excessive assessment valuation on their properties and in a number of instances reductions have been granted. The Ontario Specialties Company received a reduction of $24,000 on its property when representatives appeared before the authorities and notified them that the concern was now expanding and needed aid in carrying out these plans. It was argued that the present price of $62,000 was excessive inasmuch as it was considerably more than the firm had paid for the property. It was also stated that the concern had been offered free rental to move their business to Oswego or Carthage but they were desirous of continuing here if the city would lend co-operation.

Property owned by the Northern New York Utilities Company was revised to the extent of $52,000 and was the largest reduction granted. The company is controlled by the St. Regis Paper Company. J. N. Carlisle, president, appeared before the board of assessors and argued that the valuation placed on the property was greatly excessive inasmuch as the power plant was not in operation. The Hinde & Dauch Paper Company also sought a revision of the valuation on its Sewall Island property which is now assessed for $243,000. The claim was not allowed.

Deforestation by Taxation

Berlin, N. H., September 2, 1930,—Private reforestation is receiving a serious setback throughout New England, because of the catastrophic decline in the value of timber and out-of-date tax assessments.

In a recent conference of timberland owners, foresters, lumbermen and state officials at Keene, N. H., it was revealed that white pine timber which was commonly worth $10 a thousand feet on the stump, and sometimes sold for as high as $25 in 1920, is worth less than $3 now. But the tax assessors are continuing to assess the forest lands on the basis of 1920 timber prices. The consequences of oppressive taxation is forcing all white pine timber owners in the state to sacrifice their holdings. It is said that practically every tract of pine in the state is for sale at ruinous prices. Unless the town assessors promptly respond to the efforts of the State Tax Commission to bring about a reassessment of stumpage, reforestation, which has made much progress in New Hampshire, is doomed.

In view of this practical situation, scattering remarks by academic foresters about the necessity of compelling reforestation and discouraging forest exploitation fell on deaf ears.

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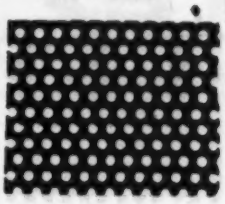
For Pulp and Paper Mills



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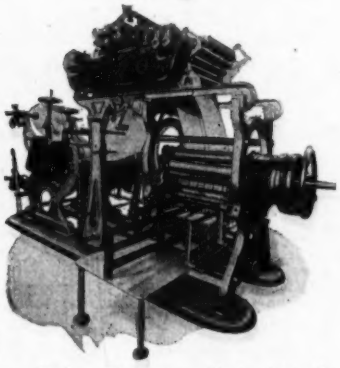

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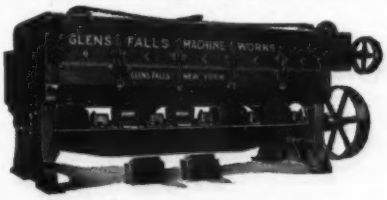

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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 1, 1930.

While the demand for the various standard grades of paper is gradually expanding, trading is not quite so lively as at this time last year. The bulk of the business transacted is apparently for immediate requirements, despite reports that stocks in the hands of dealers are reported to be below normal. Prices are holding up fairly well in view of the fact that competition is decidedly keen.

News print production in the United States and Canada during the past week was maintained at 65 per cent of capacity, according to information gathered by the News Print Service Bureau. Shipments went forward at 73 per cent of rating. Recent developments in the industry have made the situation very involved and the outlook for the near future is very vague.

Conditions in the paper board industry are practically unchanged. Demand for the various grades is seasonal but the price situation remains unsatisfactory. The fine paper market is exhibiting a strong undertone and supplies are moving into consumption at a steady pace. Prices are generally holding to schedule. The coarse paper market is spotty although demand for wrapping paper is improving.

Mechanical Pulp

The ground wood market is in a satisfactory position. Demand for both domestic and foreign mechanical pulp is fairly persistent. Offerings are sufficient to take care of current requirements. Inquiries for future account are fairly numerous. Prices are generally holding to previously quoted levels and shading is infrequent.

Chemical Pulp

Trading in the chemical pulp market during the past week was moderately active. Some fair sized orders are being booked for 1931 delivery, however. Prices are slightly easier. Foreign No. 1 strong unbleached sulphite is now offered at from $2.10 to $2.65; Mitscherlich unbleached at from $2.25 to $2.85; and No. 2 strong unbleached at from $2.10 to $2.35, all on dock, Atlantic ports.

Old Rope and Bagging

Some improvement was noticed in the old rope market. Both domestic and imported old manila rope are in excellent request and small mixed rope is going forward in fair volume. Prices are generally steady to firm. Steadiness prevails in the bagging market. Scrap and gunny are moving at a good pace while there are a number of inquiries around for roofing bagging.

Rags

The domestic rag market is irregular. Cotton cuttings are only moderately active at present. Roofing grades are in limited request. Demand for mixed rags is light. Accumulations in the hands of the dealers are not believed to be excessive. Prices are holding up fairly well. The imported rag market is rather dull at present and the price situation is unsatisfactory.

Waste Paper

Paper mill interest in the better grades of paper stock is well maintained. Soft white shavings are displaying a steady trend. Hard white envelope cuttings continue in persistent request. Demand for the lower grades of waste paper is improving, especially for folded news and mixed paper. Prices are somewhat steadier than of late.

Twine

The local twine market is in a fairly satisfactory position. Wrapping paper is reported to be in greater demand, with the near approach of the Christmas holidays, and this factor is a contributing cause for the optimism expressed by many twine dealers in the immediate future of the industry. Prices are generally steady and unchanged.

Wheeler Paper Corp. Organized

ALBANY, N. Y., September 27, 1930.—A new concern to be known as the Wheeler Paper Corporation has been organized here and articles of incorporation will be filed this coming week. The company is headed by Thomas B. Wheeler, grandson of the former vice president of the A. P. W. Paper Company, who resigned recently following its sale to the Babson interests. Other officers of the new company include Charles A. Whitney as vice president and H. T. Sherwood as secretary and treasurer. Mr. Whitney has been a prominent business man for many years as head of the Whitney Department Store while Mr. Sherwood is also identified with the Delaware & Hudson Company in an executive capacity. The officers with Howard E. Marston comprise the board of directors.

The company has taken a lease of a section of the building in Tivoli street owned by the North Hudson Chemical Company and operations will be started in about sixty days. The plant is well situated in regards to railway connections and the shipping facilities afforded will be of the best. The company will utilize about 20,000 square feet at the start and as the business grows it is planned to take over additional space. About fifty persons will be furnished steady work at the start. The new company plans to begin operations in a modest way similar to the manner of the notable founder of the A. P. W. Paper Company, Seth Wheeler, who established his business in 1877 in a small factory on Broadway. The new company will not at first engage in the manufacture of paper but will buy its tissue and other materials from a competitive market and later convert it into toilet tissue and paper towels.

The head of the new concern, Thomas B. Wheeler, severed his connections recently with the A. P. W. Paper Company after many years of service during which time he learned every detail of the business and will in a way be competing with his own relatives as some of the Wheeler family still own stock in the Babson controlled organization. The company will use the trademark devised by the late Seth Wheeler many years ago which was never used and only the highest quality of paper products will be turned out.

Low Water in Connecticut Causes Concern

HOLYOKE, Mass., September 30, 1930.—The delayed fall rains are causing some anxiety to Holyoke paper manufacturers as the water has been steadily dropping in the Connecticut River and restrictions on the use of it from the canals have had to be imposed. The headgates were closed once last week and unless more rain is forthcoming further action of the sort will be necessary.

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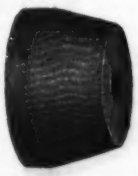

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 1, 1930.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Contract shipments are going forward in good volume. The pulp is still quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is moderately active. The contract movement is well up to average for the time of year. Prices are generally holding to previously quoted levels. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—Some improvement was noticed in the casein market. Domestic standard ground is quoted at 12½ cents and finely ground at 14 cents per pound. Argentine standard ground is still selling at 13½ cents and finely ground at 14½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Supplies of caustic soda are going forward to the paper mills in satisfactory volume. Prices remain unchanged. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is exhibiting a strong undertone. Supplies are moving into consumption in good volume. Prices are steady. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Conditions in the chlorine market are fairly satisfactory. Shipments against contract are going forward in normal volume for the season. Chlorine is still quoted at from $2.40 to $2.45 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—Weakness developed in the rosin market and prices declined slightly. The grades of gum rosin used in the paper mills are quoted at from $5.90 to $5.95 per 280 pounds, in barrels, at yard. Wood rosin is selling at $4.10 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Offerings of salt cake are about sufficient to take care of prevailing requirements. The contract movement is well up to average. Prices remain unchanged. Salt cake is quoted at from $22 to $25 per ton, while chrome salt cake is selling at from $20 to $21 per ton, in bulk, at works.

SODA ASH.—Most of the business transacted in the soda ash market was along routine lines. The contract movement was rather light. Prices remain unchanged. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32½; and in barrels, $1.55 per 100 pounds.

STARCH.—Production of starch is being maintained in ample volume to cope with current requirements. Supplies are going forward to the paper mills at a steady pace. Special paper making starch is still quoted at $3.77 per 100 pounds, in bags, and at $4.04 in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is displaying a steady trend. Contract shipments to the paper mills are moving in satisfactory volume. Commercial grades are still quoted at from $1.40 to $1.55, and iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—Business in the sulphur market is about normal. Sulphur is still quoted at $18 per ton, at mine, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—The talc market is pursuing the even tenor of its way. Shipments against contract are going forward at a normal pace. Prices remain unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, while imported talc is selling at from $18 to $20 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@	38.00
Bonds	9.00	@	53.25
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	8.00	@	11.00
Book, Cased—			
S. & S. C.	6.00	@	7.50
M. F.	5.75	@	7.00
Coated and Enamel	7.50	@	12.00
Lithograph	7.50	@	12.00
Tissues—Per Ream—			
White No. 1	.75	@	1.00
Anti-Tarnish	1.35	@	1.90
Colored	1.00	@	2.00
White No. 2	.75	@	.80
Kraft	1.00	@	1.10
Manila	.75	@	.80
Kraft—			
No. 1 Domestic	5.75	@	6.25
No. 2 Domestic	3.75	@	5.00
Southern	3.50	@	4.50
Imported	6.50	@	7.00
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.00	@	4.50
Butchers	3.75	@	4.25
Fibre Papers—			
No. 1 Fibre	5.00	@	5.50
No. 2 Fibre	4.75	@	5.25
Common Bogus	2.75	@	3.00
Screenings	3.00	@	3.25
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs.	13.00	@	16.00
Bleached, basis 20 lbs.	15.00	@	16.00

(Delivered New York)

News, per ton—			
Rolls, contract	62.00	@	—
Rolls, spot	62.00	@	—
Sheets	67.00	@	—
Side Runs	47.00	@	52.00
Boards—per ton—			
News	30.00	@	—
Straw	44.00	@	—
Chip	27.50	@	—
Binders' Boards	65.00	@	70.00
100 Test Jute Liner	37.50	@	40.00
85 Test Jute Liner	47.50	@	50.00
Sgl. Mla. Ll. Chip	42.50	@	45.00
Wood Pulp Boards	75.00	@	80.00

(F. o. b. Mill)

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	28.00	@	30.00
Dry	30.00	@	32.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@	30.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	3.00	@	4.25
Easy Bleaching	2.60	@	2.80
No. 1 strong unbleached	2.10	@	2.65
Mitscherlich unbleached	2.25	@	2.85
No. 2 strong unbleached	2.10	@	2.35
No. 1 Kraft	1.65	@	2.15
No. 2 Kraft	1.55	@	1.65
Sulphate—			
Bleached	3.40	@	3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—			
Bleached	2.65	@	4.75
Easy Bleaching Sulphite	2.55	@	2.75
News Sulphite	2.35	@	2.60
Mitscherlich	2.75	@	3.25
Kraft (Domestic)	2.10	@	3.30
Soda Bleached	2.90	@	3.20

Domestic Rags

New Rags

(Prices to Mill f. o. b N. Y.)

Shirt Cuttings—			
New White, No. 1	8.75	@	9.25
New White, No. 2	7.25	@	7.75
Silesias No. 1	6.75	@	7.00
New Unbleached	9.50	@	10.00
New Blue Prints	5.25	@	5.50
New Soft Blacks	4.50	@	5.00
Blue Overall	6.75	@	7.25
Washables	4.25	@	4.75
Fancy	4.75	@	5.25
Mixed Khaki Cuttings	4.75	@	5.25
Pink Corset Cuttings	8.00	@	8.50
O. D. Khaki Cuttings	5.15	@	5.75
Men's Corduroy	3.75	@	4.25
New Mixed Blacks	3.50	@	3.75

Old Rags

White, No. 1—			
Repacked	5.50	@	6.00
Miscellaneous	4.50	@	5.00
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.50	@	2.75
St. Soiled, White	2.00	@	2.15
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.50	@	1.60
No. 1	1.50	@	1.60
No. 2	1.15	@	1.25
No. 3	1.10	@	1.20
No. 4	1.00	@	1.10
No. 5A	.90	@	1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@	3.00
New Mixed Cuttings	2.25	@	2.75
New Light Silesias	6.75	@	7.00
Light Flanelettes	6.75	@	7.25
Unbleached Cuttings	9.00	@	9.50
New White Cuttings	9.00	@	9.50
New Light Oxfords	7.00	@	7.50
New Light Prints	5.00	@	5.50

Old Rags

No. 1 White Linens	7.25	@	8.00
No. 2 White Linens	5.75	@	6.75
No. 3 White Linens	4.75	@	5.25
No. 4 White Linens	3.00	@	3.50
No. 1 White Cotton	5.50	@	6.25
No. 2 White Cotton	4.50	@	5.00
No. 3 White Cotton	3.00	@	4.00
No. 4 White Cotton	1.75	@	2.10
Extra Light Prints	2.75	@	3.00
Ord. Light Prints	2.15	@	2.40
Med. Light Prints	1.80	@	2.00
Dutch Blue Cottons	2.15	@	2.30
French Blue Linens	2.65	@	2.75
German Blue Linens	2.30	@	2.50
German Blue Cottons	1.90	@	2.00
Checks and Blues	1.75	@	1.90
Lindsay Garments	1.30	@	1.40
Dark Cottons	1.00	@	1.10
Old Shopperies	.90	@	1.00
New Shopperies	.95	@	1.05
French Blues	1.95	@	2.05

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.65	@	1.75
Domestic	1.65	@	1.75
Wool Tares, light	1.40	@	1.50
Wool Tares, Heavy	1.40	@	1.50
Bright Bagging	1.35	@	1.45
Small Mixed Rope	1.15	@	1.25
Manila Rope—			
Foreign	3.00	@	3.10
Domestic	3.50	@	3.75
New Burlap Cut	2.25	@	2.50
Hessian Jute Threads—			
Foreign	3.50	@	4.00
Domestic	3.25	@	3.50

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	3.00	@	3.25
Hard, white, No. 2	2.40	@	2.55
Soft, white, No. 1	2.80	@	2.90
White envelope cuttings	2.90	@	3.10
Flat Stock—			
Stitchless	1.30	@	1.40
Overissue Mag.	1.30	@	1.40
Solid Flat Book	1.20	@	1.30
Crumpled No. 1	.90	@	1.00
Solid Book Ledger	2.00	@	2.10
Ledger Stock	1.30	@	1.40
New B. B. Chips	.35	@	.45
Manilas—			
New Env. Cut.	2.40	@	2.60
New Cuttings	1.50	@	1.75
Extra No. 1 old	1.25	@	1.35
Print	.60	@	.65
Bogus Wrapper	.60	@	.65
Container	.40	@	.50
Old Kraft Machine—			
Compressed bales	1.45	@	1.55
News—			
No. 1 White News	1.77	@	1.87
Strictly Overissue	.50	@	.55
Strictly Folded	.35	@	.40
No. 1 Mixed Paper	.25	@	.30
Common Paper	.15	@	.20

Consider This New Eastwood Seam With Big Open Suction Area

WHAT would a strong light show if you put it under the patented seam used on all Eastwood "Perfection" Fourdrinier Wires?

This is what you'll find:—The patented Eastwood seam has very nearly the same suction area as the body of the wire. As you know, that makes for better operation when running on the Fourdrinier machine.

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Established 1877, Belleville, N. J.

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"Perfection" WIRES
"Perfection" VALVES

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RECEIVERS...SEPARATORS
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Established 1882

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COATING CLAY
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Edgar Clays are the result of almost half a century of experience in Washing Clay. Technical Service available for both coating and loading without charge.

EDGAR BROS. CO.
50 Church St. New York
300 Tons Daily
We will be glad to send you samples—

Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrappings, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine			
Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¾	@	.05¼
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	5.00	@	5.50
Southern Kraft	3.75	@	4.00
No. 2 Kraft	3.75	@	4.00
Wood Tag Boards	.04¼	@	.06¼
Sulphite Sreenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cut-			
No. 1 Soft Shavings	2.10	@	2.15
No. 1 Mixed	.30	@	.35
No. 2 Mixed	.25	@	.35
Ledger & Writings	1.25	@	1.35
Solid Books	1.05	@	1.10
Blanks	1.60	@	1.65
Krafts	1.30	@	1.40
New Kraft Cuts	1.50	@	1.70
Manila Envelope Cuttings	1.65	@	1.70
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.45	@	.50
Folded News (over-issue	.40	@	.45
Old Newspapers—			
No. 1	.35	@	.40
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.30	@	.35
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.08	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.09	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.09	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03½	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06¾
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.03½
Common Bogus	.03¼	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	70.00
News Board	37.50	@	38.50
Chip Board	32.50	@	35.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
Fancy	.05½	@	.06
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.65	@	2.75
No. 2 Hard White	2.30	@	2.50
No. 1 Soft White	2.25	@	2.50
No. 2 Soft White	1.40	@	1.60
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.70
Solid Ledger Stock	1.55	@	1.65
Writing Paper	1.05	@	1.25
No. 1 Books, heavy	1.00	@	1.20
No. 2 Books, light	.90	@	1.00
No. 1 New Manila	2.15	@	2.30
No. 1 Old Manila	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.35	@	1.40
Common Paper	.25	@	.35
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Corrugated Board	.50	@	.60
Overissue News	.45	@	.50
Old Newspaper	.25	@	.30

Domestic Rags (Old)

White No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
M. G.	6.00	@	—
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.25	@	1.30
Repacked	.80	@	.90
No. 2	.70	@	.75
No. 3 (Roofing)	.30	@	.40
No. 4	.30	@	.40
No. 5A	.70	@	.75
B	.40	@	.60
C	.25	@	.30

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12¼
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11¾
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.06
No. 2 Kraft	.03¾	@	.05
(Less car-freight to Boston)			
Southern Kraft	.03¾	@	.04¼
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls	.009		52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	32.50	@	—
Chip Board	30.00	@	—
Chip Board (Special)	32.50	@	—
Single Manila Lined Chip	45.00	@	—
Single White, Patent Coated Newsboard Bender	65.00	@	80.00
Wood Pulp Board	75.00	@	80.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	—	@	2.25
No. 1 Books, Heavy	1.00	@	—
No. 1 Books, Light	.85	@	—
Crumpled Stitchless Book Stock	—	@	.70
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	—	@	.60
White Blank News	1.50	@	1.60
Old Kraft	1.30	@	1.35
Print Manila	.75	@	.80
No. 1 Mixed Paper	.20	@	.25
Overissue News	.35	@	.40
Old Newspapers	.37½	@	.40
Box Board, Chip	.50	@	.55
Corrugated Boxes	—	@	.45

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.65
Domestic	1.50	@	—
Manila Rope—			
Foreign	3.25	@	3.50
Domestic	—	@	3.50
Transmission Rope	2.35	@	2.50
Mixed Springs	—	@	1.00
Jute Wool Strings	.90	@	1.00
Jute Carpet Threads	1.00	@	1.10
Scrap Burlaps	1.30	@	1.35
Scrap Sisal	—	@	1.50
Scrap Sisal for shredding	—	@	1.75
Wool Tares, heavy	1.60	@	—
New Burlap Cutting	1.75	@	2.00
Australian Wool Pouches	2.50	@	2.75
Heavy Baling Bagging	—	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.08	@	.08½
New White No. 2	—	@	.06
Silesias No. 1	.06	@	.06¼
New Unbleached	—	@	.09¼
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.04	@	.04¾
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Roofing Stock—			
No. 1	1.25	@	1.50
No. 2	.90	@	1.00
No. 3	.85	@	.90
No. 4	.75	@	.85

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.95	@	1.00
New No. 1 Shirt Cuttings	8.50	@	9.00
Dutch Blues	2.25	@	2.50
Lace Curtains	4.50	@	4.75
New Checks & Blues	4.25	@	4.60
Old Fustians	1.90	@	2.00
Old Linsey Garments	1.20	@	—

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
White, No. 2	2.00	@	2.25
News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	72.50	@	75.00
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writ-			
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09¾	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

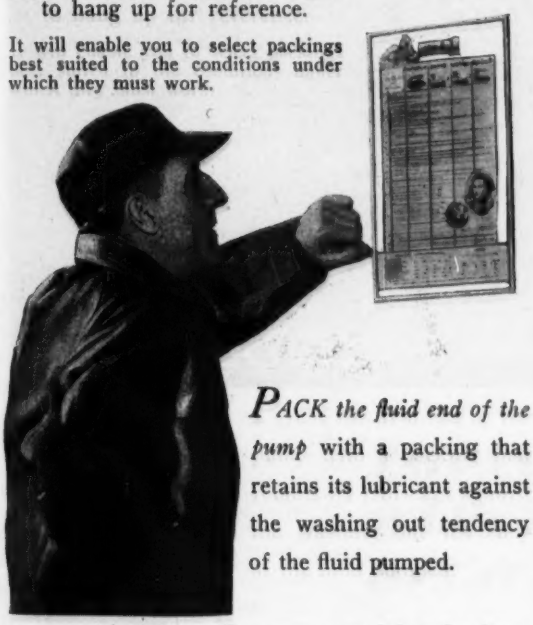
Advertising matter paged consecutively with text, has been removed here to lessen the bulk of this volume.

INDIANAPOLIS
OCT 14 1930
PUBLIC LIBRARY

Select Packings Intelligently

Send for this "A.B.C." Chart
to hang up for reference.

It will enable you to select packings best suited to the conditions under which they must work.



PACK the fluid end of the pump with a packing that retains its lubricant against the washing out tendency of the fluid pumped.

For Steam Superheat and Compressed Air

For Water (Hot and Cold) Calcium Brine, Centrifugal and Reciprocating Pumps.

For Caustic Soda, Acids, Alkalis.

For Gasoline, Naphtha and all Distillates of Petroleum.

To prove our claims for long satisfactory service, let us send you without charge or obligation working samples of these packings to test under your own conditions. State condition of service and size packing desired.

To avoid shaft friction, a packing must have sufficient lubricant, and the lubricant must be such as will resist the washing out tendency of the fluid it comes in contact with.

The packings listed on this chart are designed to give long, satisfactory service under indicated conditions.

GREENE, TWEED & CO.

Sole Manufacturers

109 Duane St., New York, N. Y.

Mail this Coupon for copy of Chart

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Please mail me a copy of your "A.B.C." Chart.

Name .....
Position .....
Firm .....
Address 12

PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-NINTH YEAR

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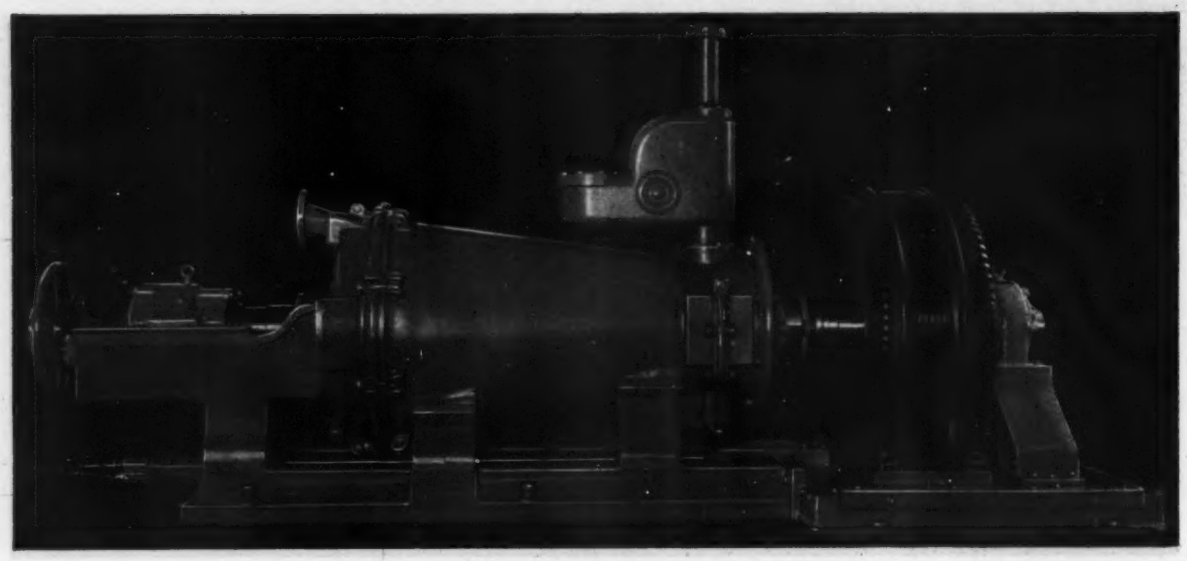

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